STARTING $ALARIE$

Of Chemists and Chemical Engineers

Analysis of the
American Chemical Society's
Survey of Graduates in
Chemistry and Chemical Engineering

1·9·9·3

STARTING SALARIES

OF CHEMISTS AND CHEMICAL ENGINEERS

1993

Analysis of the
American Chemical Society's
Survey of Graduates in
Chemistry and Chemical Engineering

American Chemical Society
1155 Sixteenth Street, NW
Washington, DC 20036

Available from the Distribution Office, ACS

CONTENTS

ACKNOWLEDGMENTS

Each year, at the direction of its Joint Board-Council Committee on Economic Status, the American Chemical Society (ACS) surveys recent chemistry and chemical engineering graduates to determine trends in starting salaries and employment status. This report presents detailed results of the 1993 Starting Salary Survey. A summary of the survey findings was published in the October 25 issue of *Chemical & Engineering News*.

Joan Burrelli and Karen Dyson of the Office of Professional Services conducted this year's survey and prepared this report. Dr. Burrelli wrote the summary and comment on the following pages. Special thanks go to the more than 4,500 graduates who took the time to respond to this year's survey.

Mary L. Funke, Manager
Office of Professional Services

SUMMARY OF FINDINGS

SALARIES

This year's starting salaries indicate a worsening economic outlook for new bachelor's chemistry graduates. The median salary for inexperienced bachelor's chemists is $24,000 this year, the same as last year. The mean starting salary was $24,626 this year, slightly less than last year's $24,764. Starting salaries for bachelor's chemistry graduates have been relatively stagnant for the past few years. From 1989 to 1991, the median starting salary for bachelor's chemists was $23,000. This year's figure is only 4% higher than it was in 1989 and is 10% less than the 1989 median starting salary after adjusting for inflation.

Starting salaries for MS and PhD chemists increased slightly this year. The mean starting salary for MS chemists rose 4% this year to $32,933. The mean starting salary for PhD chemists also rose 4% this year to $45,209. Inflation-adjusted salaries for MS and PhD chemists were up 1%.

Chemical engineering graduates continue to earn higher salaries than those of chemists. The mean starting salary for inexperienced BS chemical engineers was $38,463 in 1993, up 1% from $38,235 last year. Mean starting salaries for inexperienced MS chemical engineers rose 4% to $41,617, and for inexperienced PhD chemical engineers, they decreased 1% to $51,943.

Table 1 shows average starting salaries paid to inexperienced chemistry graduates for 1992 and 1993, and gives additional information concerning the variation among salaries within each group. Table 2 presents corresponding information for chemical engineering graduates.

For inexperienced chemists (those with less than 12 months of experience), 1993 mean starting salaries were:

$24,626	for the	BS,	down	.6%,	or in constant dollars down	3.3%
$32,933	for the	MS,	up	4.1%,	or in constant dollars up	1.3%
$45,209	for the	PhD,	up	3.9%,	or in constant dollars up	1.1%

Among chemical engineers, the 1993 mean starting salaries were:

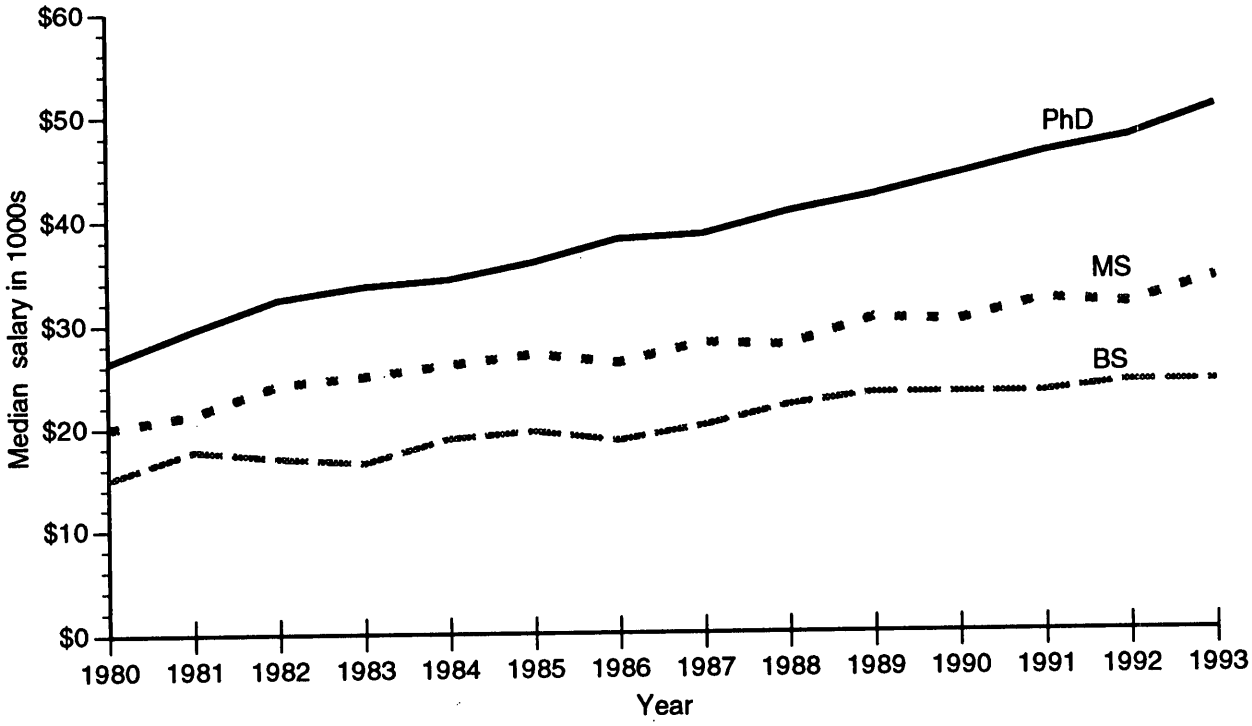
$38,463	for the	BS,	up	.6%,	or in constant dollars down	2.1%
$41,617	for the	MS,	up	3.6%,	or in constant dollars up	.8%
$51,943	for the	PhD,	down	.8%,	or in constant dollars down	3.5%

The Consumer Price Index rose 2.8% from August 1992 to August 1993. The trends in median starting salaries from 1983 to the present for inexperienced chemists and chemical engineers are shown in Figures 1 and 2.

Salaries vary by the type and characteristics of the employer as well as the educational background of the graduates. Salaries are highest in private industry and lowest in colleges or universities. The median salary for new chemistry PhDs was $53,000 for those employed in industry and $28,000 for those employed in colleges or universities (see Table A-6).

Figure 1

Median Starting Salaries of Inexperienced Chemists (in current dollars)



Source: ACS Starting Salary Surveys

Median Starting Salaries of Inexperienced Chemists* (in current dollars)

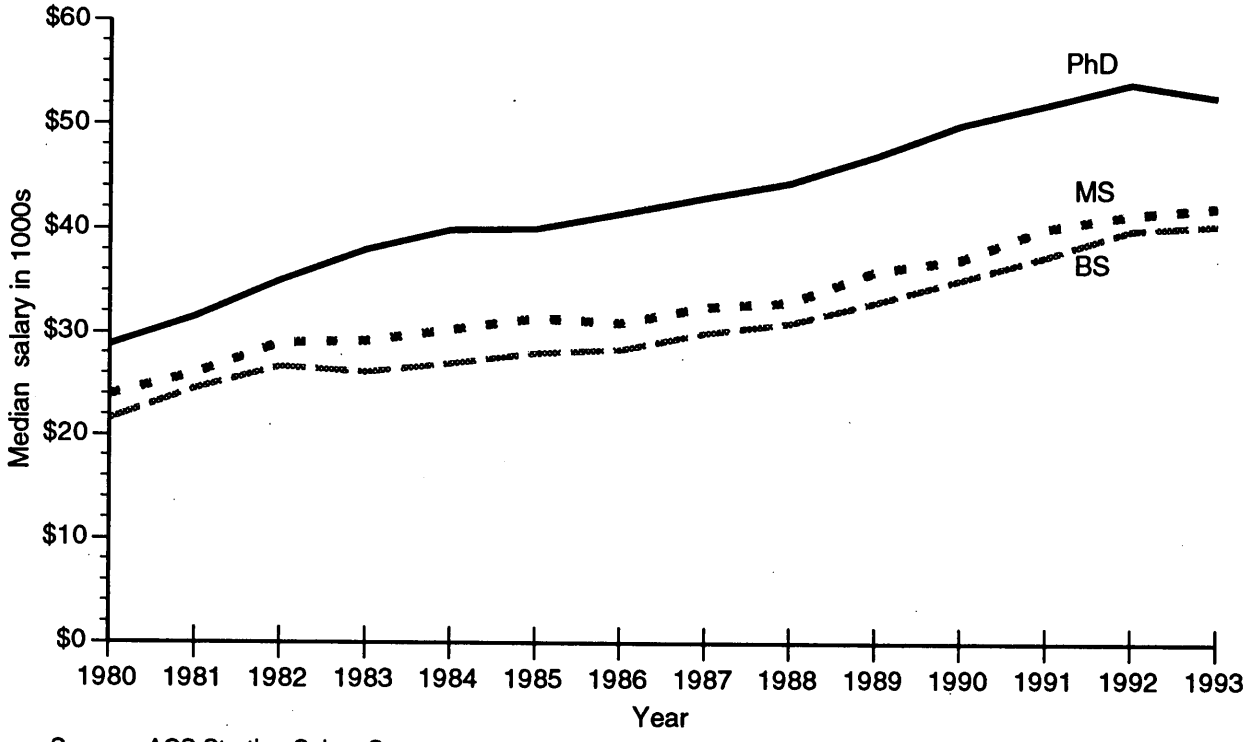
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
BS	15.0	17.7	17.0	16.5	18.8	19.5	18.6	20.0	21.9	23.0	23.0	23.0	24.0	24.0
MS	20.0	21.3	24.1	24.9	26.0	27.0	26.1	28.0	27.7	30.3	30.0	32.0	31.5	34.0
PhD	26.4	29.5	32.4	33.6	34.2	35.8	38.0	38.4	40.5	42.0	44.0	46.0	47.5	50.4

*Base annual salary in thousands of dollars

Source: ACS Starting Salary Surveys

Figure 2

Median Starting Salaries of Inexperienced Chemical Engineers (in current dollars)



Source: ACS Starting Salary Surveys

Median Starting Salaries of Inexperienced Chemical Engineers* (in current dollars)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
BS	21.6	24.5	26.7	26.1	27.0	28.0	28.4	30.0	31.0	33.0	35.2	37.5	40.0	40.5
MS	23.9	26.0	29.0	29.2	30.3	31.4	31.0	32.5	33.0	36.0	37.2	40.2	41.5	42.2
PhD	28.8	31.5	35.0	38.0	39.9	40.0	41.5	43.0	44.4	47.0	50.0	52.0	54.0	52.7

*Base annual salary in thousands of dollars

Source: ACS Starting Salary Surveys

Table 1

STARTING YEARLY SALARIES OF INEXPERIENCED FULL-TIME EMPLOYED CHEMISTRY GRADUATES

by Degree: 1992 and 1993

	DEGREE LEVEL					
Salaries	Bachelor's		Master's		Doctorate	
	1992	1993	1992	1993	1992	1993
90th Percentile	$32,000	32,000	40,000	40,500	55,000	56,600
75th Percentile	28,100	28,000	36,600	37,800	52,000	54,000
50th Percentile	24,000	24,000	31,500	34,000	47,500	50,400
25th Percentile	21,000	21,000	27,800	28,500	34,200	35,000
10th Percentile	18,100	18,000	22,000	23,000	27,000	26,000
Mean	24,764	24,626	31,626	32,933	43,499	45,209
Count	371	335	52	43	124	88
Standard Deviation	5,353	5,243	6,755	7,182	10,947	12,411

Table 2

STARTING YEARLY SALARIES OF INEXPERIENCED FULL-TIME EMPLOYED CHEMICAL ENGINEERING GRADUATES

by Degree: 1992 and 1993

	DEGREE LEVEL					
Salaries	Bachelor's		Master's		Doctorate	
	1992	1993	1992	1993	1992	1993
90th Percentile	$41,900	$42,700	$44,800	48,000	$58,000	60,000
75th Percentile	40,500	41,500	43,500	45,000	56,400	58,000
50th Percentile	40,000	40,500	41,500	42,200	54,000	52,700
25th Percentile	37,900	37,500	39,700	40,200	52,000	50,000
10th Percentile	31,300	30,000	30,000	34,000	40,000	46,000
Mean	38,235	38,463	40,162	41,617	52,368	51,943
Count	267	201	22	14	47	18
Standard Deviation	4,299	5,687	4,896	7,107	7,268	9,208

Larger employers generally pay more than smaller ones. Bachelor's chemists and chemical engineers employed in larger firms (25,000 or more employees) make $5,000 to $9,000 more, on average, than those employed in small firms (less than 500 employees) (see Tables A-10 and A-20). Chemical engineers are much more likely than chemists to be employed in large firms. Thirty-one percent of new bachelor's chemical engineers and only 16% of new bachelor's chemists are employed in firms with 25,000 or more employees. Conversely, 42% of new bachelor's chemists, but only 12% of new bachelor's chemical engineers, are employed in firms with less than 500 employees. With larger firms cutting back, the proportion of chemistry and chemical engineering graduates who found employment in smaller firms increased this year (last year 37% of new bachelor's chemists and 9% of new bachelor's chemical engineers found employment in firms with less than 500 employees).

Salaries for new BS chemistry graduates are highest in the Middle Atlantic region ($27,200) and lowest in the West South Central region ($20,500). Median salaries for new BS chemical engineers vary relatively little from region to region. The highest median salary for a new bachelor's chemical engineers is in the East North Central region ($41,000) and the lowest is in New England ($36,000). Median starting salaries for bachelor's chemical engineers in most regions are around $40,000. (See page 16 for a list of the states included in each geographic region.)

Generally speaking, bachelor's chemists and chemical engineers receive higher starting salaries if they have participated in co-op programs, or if they had a high grade point average in their major. For example, the median starting salary of bachelor's chemists who did not participate in a coop program is $25,000, for those who did, it is $27,500. The median starting salary of a bachelor's chemist with a 'C' average is $24,000; with a 'B+' average, it is $27,000.

Bachelor's and master's graduates who are on graduate assistantships or fellowships typically receive about $13,000. Stipends for postdoctoral fellowships average about $23,000 for chemistry postdocs and about $26,200 for chemical engineering postdocs.

POST-GRADUATION EMPLOYMENT STATUS

Unemployment rates for bachelor's chemistry and chemical engineering graduates increased this year. The recent history for unemployment rates of bachelor's graduates is[1]:

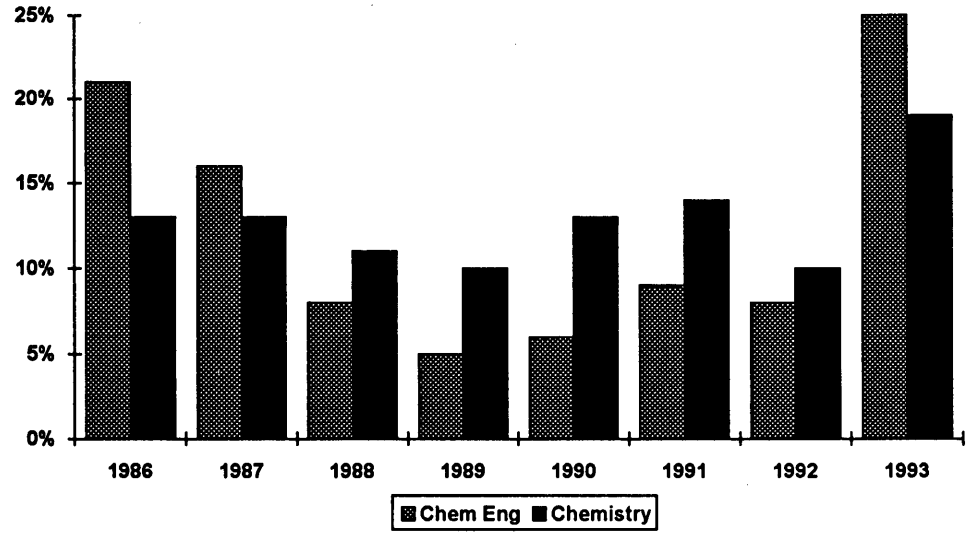
	1986	1987	1988	1989	1990	1991	1992	1993
Chemical Engineering	21%	16%	8%	5%	6%	9%	8%	25%
Chemistry	13%	13%	11%	10%	13%	14%	10%	19%

As Figure 3 shows, unemployment for both chemistry and chemical engineering graduates this year is the highest it has been in recent history.

[1]Note that the calculation for the unemployment rate excludes those persons who are not seeking employment.

Figure 3

Unemployment Rates of Recent Bachelor's Graduates



Source: ACS Starting Salary Surveys

This year, chemistry graduates are finding it a lot harder to get jobs in chemistry. The proportion of new chemistry graduates in the labor force[2] who found employment in chemistry or chemical engineering was only 54% this year, compared to last year's 65%. This year, 61% of bachelor's chemical engineering graduates in the labor force found employment in chemistry and chemical engineering, compared to 79% last year.

EMPLOYMENT OF BACHELOR'S CHEMISTS AS TECHNICIANS

About 40% of the bachelor's chemistry graduates who were employed full-time in industry responded that they were employed as technicians. Those employed as technicians earned significantly lower salaries than those not employed as technicians. The median salary of bachelor's chemistry graduates employed in industry as technicians was $24,500 whereas the median salary of those not employed as technicians was $26,200.

[2]Here the "labor force" is defined as those persons who are either employed full-time or are seeking work. New graduates who are not seeking employment or who are on fellowships are excluded from this calculation.

Table 3

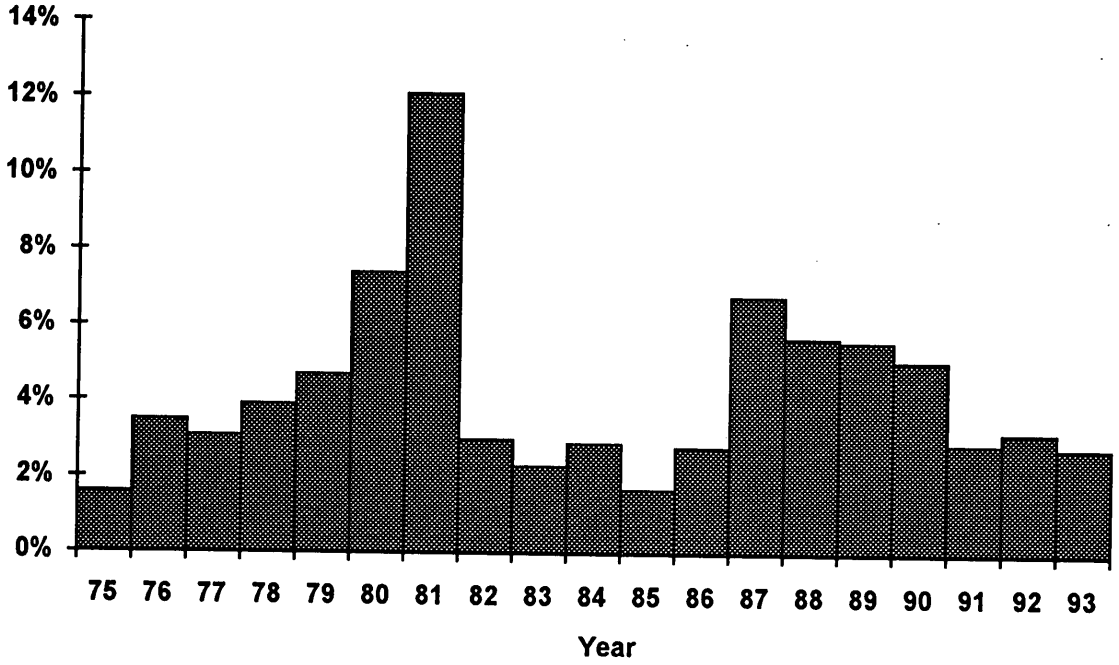
POST-GRADUATION STATUS OF CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES: FALL 1993

Major and Employment Status	Bachelor's	Master's	Doctorate
CHEMISTRY			
Full-time employed:			
In chemistry or chemical engineering	24.8%	40.0%	39.8%
Outside chemistry or chemical engineering	7.2%	5.6%	1.7%
Grad. asst./postdoctoral or other fellowship	28.6%	33.0%	40.0%
Unemployed and seeking full-time employment	14.0%	11.6%	16.4%
Unemployed and not seeking full-time employment	25.5%	9.8%	2.3%
Total	100.0	100.0	100.0
Number of responses	2,329	285	483
CHEMICAL ENGINEERING			
Full-time employed:			
In chemistry or chemical engineering	46.6%	32.3%	55.6%
Outside chemistry or chemical engineering	7.7%	5.4%	4.2%
Grad. asst./postdoctoral or other fellowship	13.5%	40.9%	16.7%
Unemployed and seeking full-time employment	22.5%	11.8%	20.8%
Unemployed and not seeking full-time employment	9.7%	9.7%	2.8%
Total	100.0	100.0	100.0
Number of responses	725	93	72

NUMBER OF OFFERS

The number of firm offers of employment was down this year for both chemistry and chemical engineering graduates. More chemistry and chemical engineering graduates had only one offer of employment this year and fewer had five or more offers of employment (see Tables E-1 and E-3).

Percent of Bachelor's Chemistry Graduates with Five or More Firm Offers of Employment



New master's and PhD chemistry graduates had more offers of employment, on average, than bachelor's graduates, and new chemistry graduates had more offers of employment than chemical engineering graduates. Experience made no difference in average number of offers of employment: both inexperienced and experienced BS chemistry graduates had, on average, two offers of employment. New PhD chemists whose field was analytical chemistry or organic chemistry had more offers this year, on average, than those in other fields.

POSTDOCTORAL FELLOWSHIPS

The fraction of new PhDs who accept postdoctoral fellowships can sometimes be used as a rough indicator of demand. Because some of the new doctoral graduates who accept postdoctoral fellowships would have preferred full-time employment had it been available, an increase in the fraction accepting postdoctoral fellowships can indicate insufficient full-time employment. This year, the fraction accepting postdoctoral fellowships decreased at the same time that the unemployment rate increased. Forty percent of new chemistry doctorates accepted postdoctoral fellowships this year, compared with 45% last year (Table 3). Rather than indicating an increase in demand, this may indicate that new doctorates are having a hard time obtaining postdoctoral fellowships as well as in obtaining full-time employment. The fraction of new chemical engineering doctorates taking postdocs increased this year: 17% of new chemical engineering doctorates accepted postdoctoral fellowships this year compared with 15% in 1992 and only 8% in 1991.

PLANS FOR ADVANCED STUDY

Traditionally, between 50% and 55% of bachelor's chemistry graduates plan full-time studies in the coming year (in any field) and another roughly 10% plan part-time studies. Bachelor's chemical engineering graduates are much less likely than chemistry graduates to plan further studies. Only 25% planned full-time studies this year. A summary of the plans of the 1993 graduates appears in Tables 4 and 5.

Each year, roughly one-third of new bachelor's chemistry graduates plan to pursue chemistry graduate study, one-third plan graduate study in another field, and one-third have plans for immediate employment (see Figure 4). Of those bachelor's chemistry graduates who planned further studies in another discipline in 1993, slightly more than half (51%) planned to go into medicine, 10% planned to go into dentistry or pharmacy, 3% planned to study business, 17% planned to study other natural sciences and engineering, and 18% planned to go into other fields. The choice of field of study has not changed appreciably in the last decade.

Of those bachelor's chemistry graduates who chose immediate employment, the majority chose industrial employment. Of those who are employed, 66% are employed in industry, and about 10% each are employed in academia, in government, and in hospitals or independent labs.

CHEMISTRY GRADUATES WHO HAVE COMPLETED ACS APPROVED PROGRAMS

Graduates completing undergraduate chemistry programs approved by the ACS Committee on Professional Training have historically received higher starting salaries than graduates completing non-approved programs. This year, graduates who completed the ACS-approved program earned, on average, $26,000 per year in industry, compared to $25,000 for those who did not complete the approved program.

Graduates of approved programs are more likely than graduates of non-approved programs to plan further studies and to plan further studies in chemistry. Fifty-eight percent of graduates of approved programs planned full-time studies compared with 41% of graduates of non-approved programs (Table B-4b). Of the bachelor's chemistry graduates who plan full-time studies, most (61%) of those from approved programs plan to study chemistry, compared with only 22% of those from non-approved programs. Conversely, 40% of those from non-approved programs plan to study medicine compared with only 16% of those from approved programs (Table C-5).

Graduates of approved programs are also less likely than those from non-approved programs to be unemployed and among those employed, are more likely to be employed in chemistry or chemical engineering. The unemployment rate for bachelor's graduates of approved programs was 15% this year, compared to 23% for graduates of non-approved programs (Table B-4a).[3] Among the full-time employed bachelor's chemistry graduates, 83% of graduates of ACS approved programs, but only 73% of graduates of non-approved programs were employed in chemistry or chemical engineering.

---

[3]Note that the calculation for the unemployment rate excludes those persons who are not seeking employment.

Table 4

PLANS FOR FURTHER STUDY OF BACHELOR'S CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES: FALL 1993

Plans	Chemistry	Chemical Engineering
Further studies	62.3%	32.3%
Full-time	(53.8%)	(24.9%)
Part-time	(8.5%)	(7.4%)
No plans for further studies	37.7%	67.7%
Total	100.0	100.0
Number of responses	2,520	755

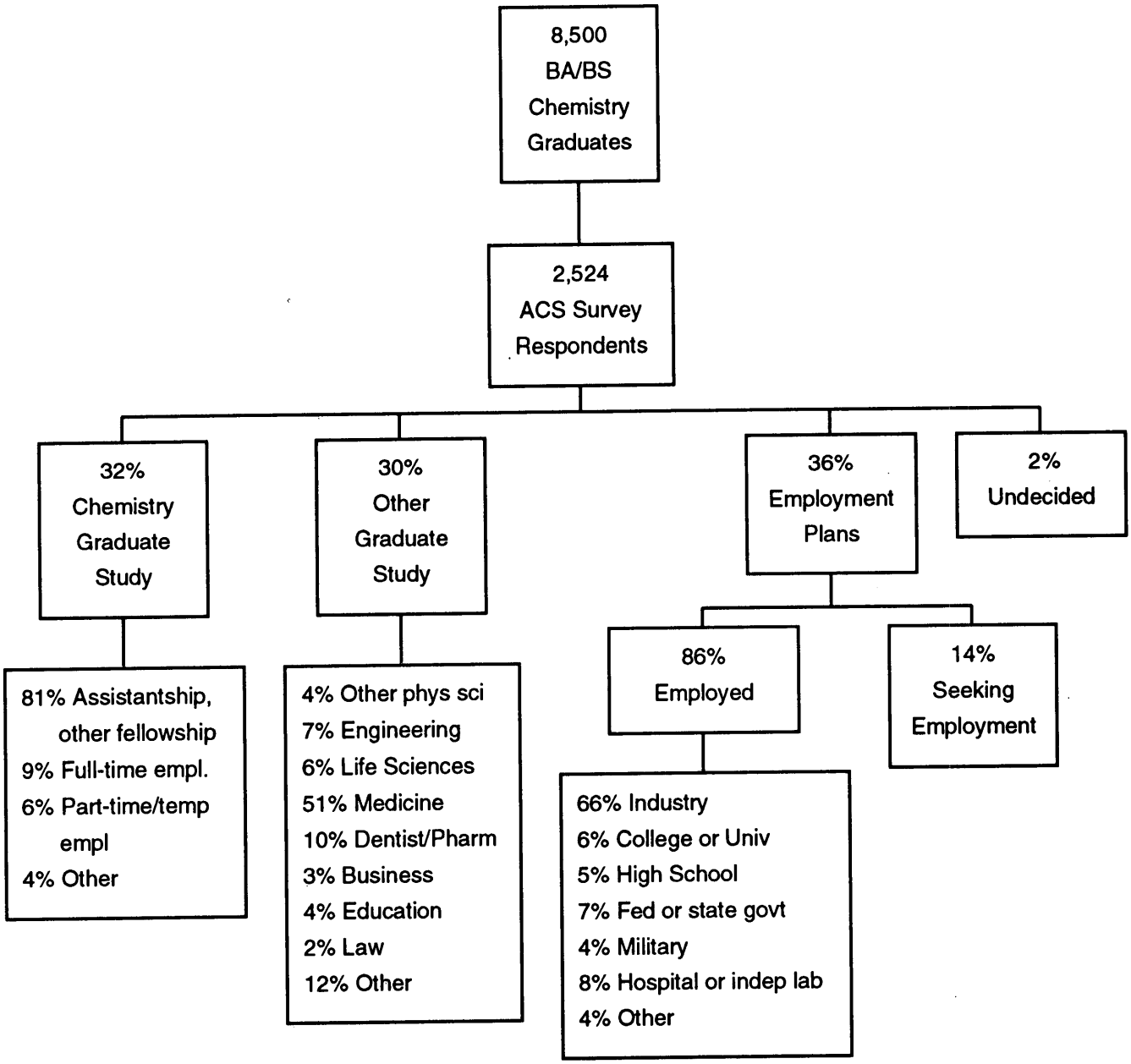
Table 5

FIELDS OF STUDY OF BACHELOR'S CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES WHO PLAN FURTHER STUDIES FALL 1993

Plans	Chemistry	Chemical Engineering
FULL-TIME STUDY		
Chemistry or biochemistry	51.9%	3.2%
Chemical or biochemical engineering	1.6%	70.2%
Other engineering	1.8%	8.0%
Medicine, dentistry, or pharmacy	33.2%	9.0%
Business or management	.3%	2.1%
All others	11.4%	7.5%
Total	100.0	100.0
Number of responses	1,352	188
PART-TIME STUDY		
Chemistry or biochemistry	45.8%	3.6%
Chemical or biochemical engineering	3.3%	34.5%
Other engineering	.9%	16.4%
Physical science	3.7%	5.5%
Life science	6.1%	------
Medicine, dentistry, or pharmacy	10.8%	1.8%
Business or management	9.8%	27.3%
Education	7.5%	3.6%
All others	12.1%	7.3%
Total	100.0	100.0
Number of responses	214	55

Figure 4

Post-graduation Plans of 1993 Bachelor's Chemistry Graduates



RACE/ETHNIC COMPOSITION OF NEW GRADUATES

Minorities, and particularly Asians, are an increasing fraction of new graduates in chemistry and chemical engineering. The proportion of new bachelor's chemistry graduates who are African-American or Hispanic has increased fairly slowly since 1973, when ACS first collected such information. In 1973, African-Americans were 2.3% and Hispanics were .7% of bachelor's chemistry graduates. This year, African-Americans are 2.9% and Hispanics are 1.7% of bachelor's chemistry graduates. Native Americans are a very small proportion (1% or less) of new graduates in chemistry and chemical engineering at all degree levels.

The proportion of new chemistry graduates who are Asian has trebled since 1973. In that year, Asians were 3% of bachelor's, 9% of master's, and 9% of PhD graduates. This year, Asians are 10% of bachelor's, 27% of master's, and 28% of PhD graduates. More than three-quarters (76%) of bachelor's chemistry graduates of Asian descent are U.S. citizens (either native or naturalized). Only 9% are here on temporary visas. The reverse is true for PhDs. Only 8% of doctoral chemistry graduates of Asian decent are U.S. citizens and the majority (62%) are here on temporary visas.

CITIZENSHIP STATUS OF NEW GRADUATES

In both chemistry and chemical engineering, the proportion of graduates who are U.S. citizens has decreased and the proportion of graduates with temporary visas has increased over the last decade, especially among master's and doctoral graduates. Among bachelor's chemistry and chemical engineering graduates, more than 90% of the graduates are U.S. citizens (see Tables F-2 and F-5). Among master's graduates, the proportion of graduates who have temporary visas has increased from 5% of the chemistry graduates and 10% of the chemical engineering graduates in 1983 to 27% of the chemistry graduates and 36% of the chemical engineering graduates in 1993. Similarly, among graduates with doctoral degrees, the proportion of graduates who have temporary visas has increased from 8% of the chemistry graduates and 18% of the chemical engineering graduates in 1983 to 21% of the chemistry graduates and 38% of the chemical engineering graduates in 1993.

New bachelor's graduates with temporary visas are much more likely than those with U.S. citizenship to have plans for further studies. Seventy-two percent of the bachelor's graduates on temporary visas, but only 54% of those with U.S. citizenship plan full-time studies in the fall of 1993. Among new PhDs, those with temporary visas are more likely to have postdoctoral appointments and are more likely to be unemployed than those with U.S. citizenship. Forty-eight percent of new PhDs with temporary visas have postdoctoral fellowships compared to only 40% of those with U.S. citizenship, and 21% of new PhDs with temporary visas, compared to only 12% of those with U.S. citizenship are not employed and seeking employment (see Tables B-2a and B-2b)

SCOPE AND METHOD

OBJECTIVES

The 1993 Starting Salary Survey is the 42nd in the series of annual surveys conducted by the American Chemical Society. Summaries of the results of these surveys appear annually in the "Employment Outlook" issue of *Chemical & Engineering News*. This year, preliminary results were published on October 25.

The primary objective of the survey is to gather data on the starting salaries and occupational status of new chemists and chemical engineers who graduated during the 1992-93 academic year. The survey covers bachelor's, master's, and doctoral degree recipients. In addition, the survey provides information on graduates' sex, citizenship, and ethnicity.

METHOD OF COLLECTION AND TIMING OF SURVEY

Chemistry departments approved by ACS and chemical engineering departments approved by the American Institute of Chemical Engineers and the Engineer's Council for Professional Development provided names and addresses of students who graduated between September, 1992 and June, 1993. Approximately one-fourth of all departments provided names and addresses to ACS by the end of August. During the summer of 1993, questionnaires were mailed to those graduates whose names had been provided and who had U.S. addresses.

EXTENT OF COVERAGE

Survey questionnaires were mailed by first class mail from July through August to 9,144 graduates. Approximately 4 weeks after each initial mailing, a second questionnaire and cover letter were sent to non-respondents. By the cutoff date of November 8, ACS had received 4,538 usable responses. Another 294 questionnaires were returned as non deliverable. A comparison of characteristics of last year's respondents with graduates from departments that did not participate in the survey and with graduates who did not mail back completed questionnaires can be found in the Technical Notes.

DEFINITIONS

The term "inexperienced" as used in the tables refers to those who have 12 months or less of prior professional work experience. The term "chemist" refers to one who received a degree in chemistry. The term "chemical engineer" refers to one who received a degree in chemical engineering. Salary tables are based only on salaries of those who found full-time employment in chemistry or chemical engineering. Postdoctoral salaries are analyzed separately. Salaries are reported in U.S. dollars.

The Technical Notes present methods for estimating sampling error and also explain certain discrepancies among some of the tables.

GEOGRAPHIC REGIONS

PACIFIC

Alaska
California
Hawaii
Oregon
Washington

MOUNTAIN

Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

WEST NORTH CENTRAL

Iowa
Kansas
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

WEST SOUTH CENTRAL

Arkansas
Louisiana
Oklahoma
Texas

EAST NORTH CENTRAL

Illinois
Indiana
Michigan
Ohio
Wisconsin

EAST SOUTH CENTRAL

Alabama
Kentucky
Mississippi
Tennessee

MIDDLE ATLANTIC

New Jersey
New York
Pennsylvania

SOUTH ATLANTIC

Delaware
District of Columbia
Florida
Georgia
Maryland
North Carolina
South Carolina
Virginia
West Virginia

NEW ENGLAND

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

TECHNICAL NOTES

DISCREPANCIES AMONG TABLES

Because not all individuals responded to all of the survey items, some pairs of tables contain totals that should be identical but are not. For example, one table may group PhDs by sex and another by employer. The totals will differ unless the number who did not indicate their sex is the same as the number who did not indicate their employer.

ESTIMATES OF MEDIAN SALARIES

Median salaries displayed within the cells of the salary tables are sample medians and are therefore subject to sampling error. This error could be quite large, especially when the number of respondents in the corresponding cell is small. Therefore, median salaries in cells with fewer than 15 respondents should not be used to estimate their corresponding population medians. Similarly, tables showing the 25th and 75th salary percentiles, and those showing the 10th and 90th salary percentiles, should have at least 25 respondents and 40 respondents, respectively.

COMPARING SALARIES

Often questions arise concerning women's salaries as compared with men's, or chemists' salaries as compared with chemical engineers'. These and similar comparisons require caution.

Statistical tests should be performed to determine whether observed differences in salaries of various sample groups could be mere chance occurrences resulting from peculiarities of the samples. Whether a difference in salaries is "statistically significant" depends not only on the magnitude of the difference but also on the sample sizes and the magnitudes of the sample standard deviations.

Discussion of statistical tests of significance may be found in *Introductory Statistics for Business and Economics*, by Thomas H. Wonnacott and Ronald J. Wonnacott, NY: Wiley, 1990, and in other similar texts.

ESTIMATING SAMPLING ERROR FOR PERCENTS

Percents in this report are derived from the sample. If the entire population had received and returned questionnaires, most estimates would be somewhat different. How much different? Although this question does not have an exact answer, the table below does provide some guidance. To use the table, find the column headed by the percent (p) derived from the sample, and find the row appropriate for the sample size (n). (Approximations for p and n may be used.) Note the number in that column and that row of the table.

This number from the body of the table measures the precision with which the sample percent estimates the percent of the entire population. Specifically, if this procedure is applied repeatedly, about 95 times out of 100, the population percent will differ from the sample percent by no more than the amount shown in the table.

Approximate Sampling Errors for Percents

n	p=10% or 90%	p=20% or 80%	p=30% or 705	p=40% or 60%	p=50%
50	8.3%	11.1%	12.7%	13.6%	13.9%
100	5.9	7.8	9.0	9.6	9.8
200	4.2	5.5	6.4	6.8	6.9
500	2.6	3.5	4.0	4.3	4.4
1000	1.9	2.5	2.8	3.0	3.1
2000	1.3	1.8	2.0	2.1	2.2
5000	0.8	1.1	1.3	1.4	1.4
10000	0.6	0.8	0.9	1.0	1.0

In Table B-1a for example, 1,013 respondents classified as chemists indicated their highest degree as the bachelor's degree and their gender as female. The percent of this group who are employed full-time in chemistry is 22.2% (p=22.2). A "95% confidence interval" for this percent may be approximated by taking n and p to be about 1000 and 20%. The above table shows an approximate sampling error of 2.5%. Hence, the 95% confidence interval is 19.7% to 24.7%. If estimates were made at this "level of confidence" from 100 similar samples, about 95 of the confidence intervals calculated from these samples would contain the true population percent.

NONRESPONSE AND SAMPLING ERROR

Comparisons between the 1992 sample and the 1992 population of graduates (the last year for which population data are currently available) indicate that the sample drawn was slightly biased toward bachelor's graduates and chemistry graduates. Departments that send in the names and addresses of graduates before September have slightly more bachelor's graduates, slightly less MS and PhD graduates, and are slightly more likely to be chemistry than chemical engineering departments.

Comparison of Survey Results, Sample Characteristics, and Population Characteristics, 1992

	Starting Salary Respondents 1992 N=4,682	Sample Characteristics 1992 N=9,209	Characteristics of All graduates 1992 N=16,622
Chemistry	78%	80%	74%
Chemical Engineering	22%	20%	26%
Chemistry			
Bachelor's	75%	73%	69%
Master's	10%	12%	13%
Doctorate	15%	15%	18%
Bachelor's			
ACS Certified	75%	73%	69%
Noncertified	10%	12%	13%
Chemical Engineering			
Bachelor's	76%	73%	70%
Master's	13%	16%	18%
Doctorate	11%	11%	12%

LIST OF TABLES

Table A-1

SALARIES of CHEMISTS employed FULL-TIME
by DEGREE and EXPERIENCE
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
WORK EXPERIENCE			
Less than 12 months			
Median	24,000	34,000	50,450
Mean	24,626	32,933	45,209
Std Dev	5,243	7,182	12,411
Count	335	43	88
12-36 months			
Median	26,500	31,500	50,000
Mean	26,910	32,315	45,273
Std Dev	5,979	7,077	12,822
Count	143	27	35
More than 36 months			
Median	32,000	38,560	49,000
Mean	33,194	40,968	43,559
Std Dev	11,237	10,099	13,769
Count	83	44	65
TOTAL			
Median	25,000	35,800	50,000
Mean	26,476	35,888	44,651
Std Dev	7,262	9,270	12,926
Count	561	114	188

Table A-2

SALARIES of CHEMICAL ENGINEERS employed FULL-TIME
by DEGREE and EXPERIENCE
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
WORK EXPERIENCE			
Less than 12 months			
Median	40,500	42,150	52,740
Mean	38,463	41,617	51,943
Std Dev	5,687	7,107	9,208
Count	201	14	18
12-36 months			
Median	40,000	37,250	54,000
Mean	38,367	38,000	50,002
Std Dev	4,289	5,007	10,821
Count	117	8	15
More than 36 months			
Median	40,800	45,500	58,000
Mean	41,748	50,125	56,714
Std Dev	5,656	12,357	5,469
Count	15	8	7
TOTAL			
Median	40,000	42,400	54,100
Mean	38,577	42,921	52,050
Std Dev	5,266	9,347	9,440
Count	333	30	40

Table A-3

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
in PRIVATE INDUSTRY by SEX and DEGREE
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
SEX			
Male			
Median	25,000	36,000	53,000
Mean	25,467	33,780	52,492
Std Dev	5,037	6,514	6,626
Count	139	13	35
Female			
Median	26,000	37,000	52,000
Mean	26,263	35,446	51,500
Std Dev	5,639	6,147	6,302
Count	95	19	24
TOTAL			
Median	25,000	36,500	53,000
Mean	25,790	34,769	52,088
Std Dev	5,292	6,249	6,460
Count	234	32	59

Table A-4

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME in PRIVATE INDUSTRY by SEX and DEGREE
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
SEX			
Male			
Median	40,100	42,000	55,500
Mean	38,672	43,867	52,357
Std Dev	5,761	4,311	10,367
Count	96	9	14
Female			
Median	40,800	44,340	51,480
Mean	39,090	41,113	51,480
Std Dev	4,779	6,169	0
Count	93	3	1
TOTAL			
Median	40,500	42,150	55,000
Mean	38,878	43,178	52,299
Std Dev	5,291	4,689	9,993
Count	189	12	15

Table A-5

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
by SEX and DEGREE
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
SEX			
Male			
Median	24,844	32,500	51,000
Mean	24,489	31,924	45,925
Std Dev	5,008	6,867	13,527
Count	200	18	49
Female			
Median	24,000	35,000	50,000
Mean	24,720	33,659	44,424
Std Dev	5,710	7,454	11,081
Count	136	25	38
TOTAL			
Median	24,000	34,000	50,500
Mean	24,582	32,933	45,269
Std Dev	5,296	7,182	12,470
Count	336	43	87

Table A-6

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
by DEGREE and EMPLOYER
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
EMPLOYER			
Industry			
Median	25,000	36,500	53,000
Mean	25,790	34,769	51,887
Std Dev	5,292	6,249	6,592
Count	234	32	60
College or univ			
Median	18,300	26,000	28,000
Mean	18,381	24,000	29,445
Std Dev	3,147	11,136	9,437
Count	23	3	23
High school			
Median	24,000	35,750	37,000
Mean	23,629	35,750	37,000
Std Dev	3,387	354	0
Count	17	2	1
Federal govt			
Median	22,717	---	41,500
Mean	24,105	---	41,500
Std Dev	5,852	---	3,536
Count	5	0	2
Military			
Median	24,500	29,000	---
Mean	24,125	29,000	---
Std Dev	2,588	0	---
Count	8	1	0
State or local govt			
Median	21,800	22,500	---
Mean	23,018	24,333	---
Std Dev	3,998	3,617	---
Count	12	3	0
Hospital or indep lab			
Median	22,000	29,000	---
Mean	21,893	29,000	---
Std Dev	3,808	7,071	---
Count	29	2	0
Other			
Median	21,900	---	34,000
Mean	21,950	---	34,000
Std Dev	4,849	---	11,314
Count	8	0	2
TOTAL			
Median	24,000	34,000	50,450
Mean	24,582	32,933	45,209
Std Dev	5,296	7,182	12,411
Count	336	43	88

Table A-7

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
by DEGREE and EMPLOYER - MEN only
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
EMPLOYER			
Industry			
Median	25,000	36,000	53,000
Mean	25,467	33,780	52,492
Std Dev	5,037	6,514	6,626
Count	139	13	35
College or univ			
Median	20,000	26,000	23,750
Mean	19,125	26,000	28,592
Std Dev	3,277	0	12,701
Count	14	1	12
High school			
Median	24,000	36,000	---
Mean	23,500	36,000	---
Std Dev	2,550	0	---
Count	5	1	0
Federal govt			
Median	28,233	---	44,000
Mean	28,233	---	44,000
Std Dev	8,156	---	0
Count	2	0	1
Military			
Median	25,000	29,000	---
Mean	24,714	29,000	---
Std Dev	2,138	0	---
Count	7	1	0
State or local govt			
Median	22,800	22,250	---
Mean	24,028	22,250	---
Std Dev	4,550	354	---
Count	8	2	0
Hospital or indep lab			
Median	22,000	---	---
Mean	22,237	---	---
Std Dev	3,394	---	---
Count	19	0	0
Other			
Median	21,200	---	26,000
Mean	21,400	---	26,000
Std Dev	5,540	---	0
Count	6	0	1
TOTAL			
Median	24,844	32,500	51,000
Mean	24,489	31,924	45,925
Std Dev	5,008	6,867	13,527
Count	200	18	49

Table A-8

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
by DEGREE and EMPLOYER - WOMEN only
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
EMPLOYER			
Industry			
Median	26,000	37,000	52,000
Mean	26,263	35,446	51,500
Std Dev	5,639	6,147	6,302
Count	95	19	24
College or univ			
Median	18,000	23,000	28,875
Mean	17,224	23,000	30,375
Std Dev	2,705	15,556	4,081
Count	9	2	11
High school			
Median	23,750	35,500	37,000
Mean	23,683	35,500	37,000
Std Dev	3,784	0	0
Count	12	1	1
Federal govt			
Median	22,717	---	39,000
Mean	21,352	---	39,000
Std Dev	2,613	---	0
Count	3	0	1
Military			
Median	20,000	---	---
Mean	20,000	---	---
Std Dev	0	---	---
Count	1	0	0
State or local govt			
Median	21,000	28,500	---
Mean	20,996	28,500	---
Std Dev	1,467	0	---
Count	4	1	0
Hospital or indep lab			
Median	20,400	29,000	---
Mean	21,240	29,000	---
Std Dev	4,620	7,071	---
Count	10	2	0
Other			
Median	23,600	---	42,000
Mean	23,600	---	42,000
Std Dev	1,980	---	0
Count	2	0	1
TOTAL			
Median	24,000	35,000	50,000
Mean	24,720	33,659	44,424
Std Dev	5,710	7,454	11,081
Count	136	25	38

Table A-9

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
by DEGREE and TYPE OF INDUSTRY
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
TYPE OF INDUSTRY			
Nonmanufacturing			
Median	22,000	28,000	46,000
Mean	22,228	30,292	43,364
Std Dev	4,853	7,393	10,494
Count	73	5	8
Aerospace			
Median	21,000	---	---
Mean	21,000	---	---
Std Dev	0	---	---
Count	1	0	0
Basic chemicals			
Median	26,000	40,350	52,000
Mean	27,960	40,350	52,580
Std Dev	3,465	3,748	2,405
Count	5	2	5
Specialty chemicals			
Median	26,000	33,900	52,500
Mean	26,304	33,900	49,714
Std Dev	4,609	5,515	6,569
Count	43	2	7
Agricultural chemicals			
Median	26,500	35,000	---
Mean	27,500	35,000	---
Std Dev	6,017	0	---
Count	6	1	0
Electronics			
Median	---	20,000	---
Mean	---	20,000	---
Std Dev	---	0	---
Count	0	1	0
Petroleum			
Median	24,000	---	46,000
Mean	26,000	---	46,000
Std Dev	5,292	---	0
Count	3	0	1
Pharmaceuticals			
Median	26,250	37,570	55,250
Mean	27,460	37,619	54,887
Std Dev	5,412	4,623	5,187
Count	72	14	24
Plastics			
Median	30,000	35,000	53,000
Mean	29,344	35,000	51,750
Std Dev	5,282	0	4,717
Count	9	1	4
Other manuf			
Median	26,000	33,000	52,000
Mean	26,104	32,600	52,259
Std Dev	4,298	6,066	2,223
Count	37	5	12
TOTAL			
Median	25,000	37,000	53,000
Mean	25,560	34,826	51,725
Std Dev	5,369	6,344	6,658
Count	249	31	61

Table A-10

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
in INDUSTRY by DEGREE and EMPLOYER SIZE
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
EMPLOYER SIZE			
Less than 500			
Median	22,880	30,500	51,000
Mean	23,258	31,727	47,076
Std Dev	4,470	8,054	11,178
Count	95	11	12
500 to 2,499			
Median	25,000	35,000	50,400
Mean	25,609	34,543	51,289
Std Dev	5,004	6,060	3,800
Count	50	7	9
2,500 to 9,999			
Median	28,500	38,000	54,000
Mean	28,938	37,593	54,806
Std Dev	3,877	4,943	6,282
Count	29	3	15
10,000 to 24,999			
Median	27,000	38,900	53,000
Mean	26,455	38,700	53,667
Std Dev	4,936	917	2,082
Count	17	3	3
25,000 or more			
Median	28,000	38,220	53,000
Mean	29,295	37,323	52,552
Std Dev	5,595	3,871	2,063
Count	37	6	21
TOTAL			
Median	25,000	37,000	53,000
Mean	25,714	34,787	51,887
Std Dev	5,310	6,449	6,592
Count	228	30	60

Table A-11

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
by DEGREE and WORK FUNCTION
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
WORK FUNCTION			
Teaching			
Median	23,750	34,750	31,500
Mean	23,544	32,875	34,008
Std Dev	3,480	4,661	9,324
Count	16	4	15
Management			
Median	21,500	28,500	45,000
Mean	22,167	28,500	45,000
Std Dev	5,650	707	4,243
Count	12	2	2
Basic research			
Median	22,717	31,250	41,500
Mean	24,103	29,103	40,054
Std Dev	5,284	9,499	16,853
Count	51	8	22
Applied research			
Median	25,100	36,500	52,250
Mean	26,212	36,223	51,187
Std Dev	5,940	5,567	6,730
Count	80	16	46
Production			
Median	25,000	30,000	45,000
Mean	24,931	31,731	47,500
Std Dev	4,696	7,850	4,330
Count	126	11	3
Other			
Median	22,233	33,100	---
Mean	22,237	33,100	---
Std Dev	5,214	6,505	---
Count	48	2	0
TOTAL			
Median	24,000	34,000	50,450
Mean	24,558	32,933	45,209
Std Dev	5,304	7,182	12,411
Count	333	43	88

Table A-12

SALARIES of INEXPERIENCED B.S. CHEMISTS employed FULL-TIME
by EMPLOYER and CERTIFICATION
1993 ACS Starting Salary Survey

	CURRICULUM APPROVED?		TOTAL
	No	Yes	
EMPLOYER			
Industry			
Median	25,000	26,000	25,000
Mean	24,709	26,818	25,790
Std Dev	5,131	5,259	5,292
Count	114	120	234
College or univ			
Median	18,000	20,000	18,300
Mean	17,500	19,526	18,381
Std Dev	3,232	2,776	3,147
Count	13	10	23
High school			
Median	23,500	25,750	24,000
Mean	22,858	26,138	23,629
Std Dev	2,988	3,812	3,387
Count	13	4	17
Federal govt			
Median	22,717	22,733	22,717
Mean	25,019	22,733	24,105
Std Dev	8,080	378	5,852
Count	3	2	5
Military			
Median	26,000	24,000	24,500
Mean	26,000	23,857	24,125
Std Dev	0	2,673	2,588
Count	1	7	8
State or local govt			
Median	22,242	20,913	21,800
Mean	23,798	21,457	23,018
Std Dev	4,651	1,809	3,998
Count	8	4	12
Hospital or indep lab			
Median	22,000	20,000	22,000
Mean	22,344	20,167	21,893
Std Dev	3,966	2,733	3,808
Count	23	6	29
Other			
Median	25,000	21,600	21,900
Mean	22,200	21,533	21,950
Std Dev	6,380	702	4,849
Count	5	3	8
TOTAL			
Median	24,000	25,000	24,000
Mean	23,655	25,653	24,582
Std Dev	5,117	5,313	5,296
Count	180	156	336

Table A-13

SALARIES of INEXPERIENCED MS and PhD CHEMISTS employed FULL-TIME
by DEGREE and DEGREE SPECIALTY
1993 ACS Starting Salary Survey

	Highest Degree	
	MS	PHD
DEGREE FIELD		
Biochemistry		
Median	29,000	45,000
Mean	29,880	43,525
Std Dev	5,893	24,702
Count	5	4
General chem		
Median	24,000	---
Mean	25,333	---
Std Dev	2,309	---
Count	3	0
Analytical chem		
Median	33,230	52,000
Mean	30,471	49,433
Std Dev	8,994	7,867
Count	14	15
Inorganic chem		
Median	35,000	47,000
Mean	35,125	44,426
Std Dev	4,366	8,656
Count	4	18
Organic chem		
Median	37,400	53,000
Mean	36,843	48,127
Std Dev	5,445	11,644
Count	12	29
Physical chem		
Median	37,500	28,875
Mean	37,500	37,557
Std Dev	3,536	14,394
Count	2	17
Polymer chem		
Median	35,500	52,000
Mean	35,500	44,750
Std Dev	707	15,945
Count	2	4
Other chem		
Median	35,500	50,000
Mean	35,500	50,000
Std Dev	0	0
Count	1	1
TOTAL		
Median	34,000	50,450
Mean	32,933	45,209
Std Dev	7,182	12,411
Count	43	88

Table A-14

SALARIES of INEXPERIENCED CHEMISTS employed FULL-TIME
by DEGREE and GEOGRAPHIC REGION
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
REGION			
Pacific			
Median	24,000	28,000	51,375
Mean	24,742	28,000	46,675
Std Dev	4,971	5,657	12,878
Count	23	2	10
Mountain			
Median	22,450	26,000	32,500
Mean	23,239	26,000	31,500
Std Dev	6,002	0	7,937
Count	18	1	4
West North Central			
Median	24,688	23,000	51,000
Mean	23,419	23,000	43,167
Std Dev	4,363	0	14,716
Count	37	1	6
West South Central			
Median	20,500	25,250	50,400
Mean	22,340	26,375	43,680
Std Dev	6,372	12,996	10,954
Count	14	4	5
East North Central			
Median	25,500	34,000	51,630
Mean	25,204	34,688	44,542
Std Dev	5,228	3,626	12,708
Count	80	5	12
East South Central			
Median	24,000	35,000	38,500
Mean	22,540	34,540	40,125
Std Dev	3,212	5,321	10,086
Count	15	5	4
Middle Atlantic			
Median	27,250	37,000	53,000
Mean	26,589	36,408	49,665
Std Dev	5,765	5,904	11,117
Count	66	13	21
South Atlantic			
Median	22,000	34,730	47,500
Mean	22,649	33,697	44,313
Std Dev	4,601	7,229	11,499
Count	42	6	16
New England			
Median	25,000	30,000	52,000
Mean	25,608	29,600	48,513
Std Dev	5,304	6,348	16,087
Count	23	5	8
TOTAL			
Median	24,000	34,000	50,625
Mean	24,579	32,860	45,410
Std Dev	5,333	7,253	12,379
Count	318	42	86

Table A-15

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME
by SEX and DEGREE
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
SEX			
Male			
Median	40,000	42,000	54,000
Mean	38,128	41,755	51,971
Std Dev	6,252	7,613	9,491
Count	104	11	17
Female			
Median	40,700	44,340	51,480
Mean	38,823	41,113	51,480
Std Dev	5,018	6,169	0
Count	97	3	1
TOTAL			
Median	40,500	42,150	52,740
Mean	38,463	41,617	51,943
Std Dev	5,687	7,107	9,208
Count	201	14	18

Table A-16

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME
by DEGREE and EMPLOYER
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
EMPLOYER			
Industry			
Median	40,500	42,150	55,000
Mean	38,878	43,178	52,299
Std Dev	5,291	4,689	9,993
Count	189	12	15
College or univ			
Median	36,000	22,000	46,000
Mean	36,000	22,000	46,000
Std Dev	0	0	0
Count	1	1	1
Federal govt			
Median	39,960	42,500	54,000
Mean	39,787	42,500	54,000
Std Dev	1,707	0	0
Count	3	1	1
Military			
Median	22,000	---	---
Mean	20,800	---	---
Std Dev	2,433	---	---
Count	3	0	0
State or local govt			
Median	26,000	---	---
Mean	26,000	---	---
Std Dev	0	---	---
Count	1	0	0
Hospital or indep lab			
Median	34,000	---	---
Mean	34,000	---	---
Std Dev	0	---	---
Count	1	0	0
Other			
Median	35,100	---	50,500
Mean	35,167	---	50,500
Std Dev	208	---	0
Count	3	0	1
TOTAL			
Median	40,500	42,150	52,740
Mean	38,463	41,617	51,943
Std Dev	5,687	7,107	9,208
Count	201	14	18

Table A-17

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME
by DEGREE and EMPLOYER - MEN only
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
EMPLOYER			
Industry			
Median	40,100	42,000	55,500
Mean	38,672	43,867	52,357
Std Dev	5,761	4,311	10,367
Count	96	9	14
College or univ			
Median	36,000	22,000	46,000
Mean	36,000	22,000	46,000
Std Dev	0	0	0
Count	1	1	1
Federal govt			
Median	40,680	42,500	54,000
Mean	40,680	42,500	54,000
Std Dev	1,018	0	0
Count	2	1	1
Military			
Median	20,200	---	---
Mean	20,200	---	---
Std Dev	3,111	---	---
Count	2	0	0
State or local govt			
Median	26,000	---	---
Mean	26,000	---	---
Std Dev	0	---	---
Count	1	0	0
Hospital or indep lab			
Median	34,000	---	---
Mean	34,000	---	---
Std Dev	0	---	---
Count	1	0	0
Other			
Median	35,000	---	50,500
Mean	35,000	---	50,500
Std Dev	0	---	0
Count	1	0	1
TOTAL			
Median	40,000	42,000	54,000
Mean	38,128	41,755	51,971
Std Dev	6,252	7,613	9,491
Count	104	11	17

Table A-18

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME
by DEGREE and EMPLOYER - WOMEN only
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
EMPLOYER			
Industry			
Median	40,800	44,340	51,480
Mean	39,090	41,113	51,480
Std Dev	4,779	6,169	0
Count	93	3	1
Federal govt			
Median	38,000	---	---
Mean	38,000	---	---
Std Dev	0	---	---
Count	1	0	0
Military			
Median	22,000	---	---
Mean	22,000	---	---
Std Dev	0	---	---
Count	1	0	0
Other			
Median	35,250	---	---
Mean	35,250	---	---
Std Dev	212	---	---
Count	2	0	0
TOTAL			
Median	40,700	44,340	51,480
Mean	38,823	41,113	51,480
Std Dev	5,018	6,169	0
Count	97	3	1

Table A-19

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME
by DEGREE and TYPE OF INDUSTRY
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
TYPE OF INDUSTRY			
Nonmanufacturing			
Median	36,852	41,100	48,500
Mean	34,717	41,800	42,120
Std Dev	6,606	2,315	14,953
Count	27	4	4
Aerospace			
Median	26,000	34,000	---
Mean	26,000	34,000	---
Std Dev	0	0	---
Count	1	1	0
Basic chemicals			
Median	41,592	---	57,500
Mean	40,612	---	57,750
Std Dev	2,779	---	2,500
Count	22	0	4
Specialty chemicals			
Median	40,650	42,000	---
Mean	39,741	42,000	---
Std Dev	5,285	0	---
Count	36	1	0
Agricultural chemicals			
Median	41,000	53,300	---
Mean	39,700	53,300	---
Std Dev	3,663	0	---
Count	8	1	0
Electronics			
Median	36,900	---	50,500
Mean	35,360	---	50,500
Std Dev	4,194	---	0
Count	5	0	1
Petroleum			
Median	41,000	45,000	51,000
Mean	40,550	45,000	54,000
Std Dev	3,921	0	5,050
Count	16	1	5
Pharmaceuticals			
Median	42,398	---	59,000
Mean	40,208	---	59,000
Std Dev	5,744	---	0
Count	12	0	1
Plastics			
Median	40,800	44,340	---
Mean	40,013	44,880	---
Std Dev	4,351	2,888	---
Count	8	3	0
Other manuf			
Median	40,500	42,000	56,000
Mean	39,159	42,000	56,000
Std Dev	4,804	0	0
Count	54	1	1
TOTAL			
Median	40,500	42,150	53,240
Mean	38,878	43,178	52,186
Std Dev	5,291	4,689	9,664
Count	189	12	16

Table A-20

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME
by DEGREE and EMPLOYER SIZE
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
EMPLOYER SIZE			
Less than 500			
Median	31,000	33,170	33,000
Mean	32,371	33,170	33,000
Std Dev	7,731	15,797	18,385
Count	24	2	2
500 to 2,499			
Median	40,000	37,000	46,000
Mean	38,185	37,000	46,000
Std Dev	5,127	4,243	0
Count	39	2	1
2,500 to 9,999			
Median	40,500	42,500	54,000
Mean	39,530	44,167	53,333
Std Dev	4,759	3,329	2,082
Count	35	3	3
10,000 to 24,999			
Median	41,000	42,150	50,250
Mean	39,986	42,375	52,375
Std Dev	3,389	1,981	4,423
Count	38	4	4
25,000 or more			
Median	40,800	45,000	57,500
Mean	39,296	46,767	56,685
Std Dev	5,478	5,853	3,716
Count	61	3	8
TOTAL			
Median	40,319	42,150	52,740
Mean	38,407	41,617	51,943
Std Dev	5,729	7,107	9,208
Count	197	14	18

Table A-21

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME
by DEGREE and WORK FUNCTION
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
WORK FUNCTION			
Teaching			
Median	---	22,000	---
Mean	---	22,000	---
Std Dev	---	0	---
Count	0	1	0
Management			
Median	41,000	42,500	---
Mean	36,489	42,500	---
Std Dev	7,886	0	---
Count	19	1	0
Basic research			
Median	34,000	---	48,000
Mean	33,705	---	48,000
Std Dev	8,561	---	2,828
Count	3	0	2
Applied research			
Median	40,100	42,150	55,500
Mean	39,096	43,180	54,891
Std Dev	5,180	5,154	4,457
Count	70	10	14
Production			
Median	40,800	44,340	50,500
Mean	39,976	44,340	50,500
Std Dev	3,696	0	0
Count	69	1	1
Other			
Median	39,750	42,000	20,000
Mean	36,041	42,000	20,000
Std Dev	6,903	0	0
Count	40	1	1
TOTAL			
Median	40,500	42,150	52,740
Mean	38,463	41,617	51,943
Std Dev	5,687	7,107	9,208
Count	201	14	18

Table A-22

SALARIES of INEXPERIENCED CHEMICAL ENGINEERS employed FULL-TIME
by DEGREE and GEOGRAPHIC REGION
1993 ACS Starting Salary Survey

	Highest Degree		
	BS	MS	PHD
REGION			
Pacific			
Median	40,000	42,500	52,250
Mean	38,709	45,933	52,250
Std Dev	4,434	6,385	2,475
Count	13	3	2
Mountain			
Median	38,500	---	---
Mean	38,867	---	---
Std Dev	1,629	---	---
Count	6	0	0
West North Central			
Median	40,500	---	50,000
Mean	37,050	---	50,000
Std Dev	6,866	---	0
Count	18	0	1
West South Central			
Median	40,500	42,300	57,000
Mean	40,371	42,880	55,496
Std Dev	1,954	1,273	4,504
Count	24	3	5
East North Central			
Median	41,000	42,000	51,000
Mean	39,888	42,333	49,333
Std Dev	4,577	2,517	2,887
Count	26	3	3
East South Central			
Median	40,000	22,000	---
Mean	37,701	22,000	---
Std Dev	7,567	0	---
Count	13	1	0
Middle Atlantic			
Median	40,800	42,600	51,000
Mean	38,893	42,600	45,250
Std Dev	6,219	3,394	17,727
Count	49	2	4
South Atlantic			
Median	40,000	41,000	58,000
Mean	37,581	41,000	58,000
Std Dev	6,334	9,899	3,000
Count	34	2	3
New England			
Median	36,000	---	---
Mean	34,979	---	---
Std Dev	6,049	---	---
Count	15	0	0
TOTAL			
Median	40,260	42,150	52,740
Mean	38,422	41,617	51,943
Std Dev	5,720	7,107	9,208
Count	198	14	18

Table A-23

SALARIES of NEW GRADUATES on GRADUATE ASSISTANTSHIPS, FELLOWSHIPS or POSTDOCTORAL FELLOWSHIPS by DEGREE and FIELD
1993 ACS Starting Salary Survey

	FIELD	
	CHEM ENG	CHEMISTRY
Highest Degree		
BS		
Median	14,400	13,500
Mean	14,253	13,421
Std Dev	4,769	2,964
Count	135	783
MS		
Median	13,500	13,000
Mean	13,844	13,036
Std Dev	3,542	2,008
Count	47	120
PHD		
Median	26,200	23,000
Mean	27,326	24,669
Std Dev	6,271	8,183
Count	19	249

Table B-1a

CHEMISTRY GRADUATES
by EMPLOYMENT STATUS, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Full-Time in Chemistry	26.8% 353	22.2% 225	24.8% 578	39.9% 63	40.2% 51	40.0% 114	36.6% 120	46.5% 72	39.8% 192
Full-Time in Non-Chemistry	7.0% 92	7.5% 76	7.2% 168	6.3% 10	4.7% 6	5.6% 16	2.1% 7	.6% 1	1.7% 8
Fellowship	27.9% 367	29.4% 298	28.6% 665	33.5% 53	32.3% 41	33.0% 94	42.7% 140	34.2% 53	40.0% 193
Seeking Employment	14.1% 185	13.8% 140	14.0% 325	7.6% 12	16.5% 21	11.6% 33	16.5% 54	16.1% 25	16.4% 79
Not Seeking Employment	24.2% 319	27.0% 274	25.5% 593	12.7% 20	6.3% 8	9.8% 28	2.1% 7	2.6% 4	2.3% 11
Total	100.0% 56.5% 1316	100.0% 43.5% 1013	100.0% 100.0% 2329	100.0% 55.4% 158	100.0% 44.6% 127	100.0% 100.0% 285	100.0% 67.9% 328	100.0% 32.1% 155	100.0% 100.0% 483

Table B-1b

CHEMISTRY GRADUATES
by PLANS FOR FURTHER STUDIES IN FALL 1993, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Pursue Advanced Studies in Fall 1993									
Yes, full-time	52.8% 754	55.0% 601	53.8% 1355	45.1% 74	38.9% 49	42.4% 123	15.7% 50	8.7% 13	13.5% 63
Yes, part-time	9.6% 137	7.1% 78	8.5% 215	7.3% 12	8.7% 11	7.9% 23	1.6% 5	1.3% 2	1.5% 7
No	37.6% 537	37.8% 413	37.7% 950	47.6% 78	52.4% 66	49.7% 144	82.7% 263	90.0% 135	85.0% 398
Total	100.0% 56.7% 1428	100.0% 43.3% 1092	100.0% 100.0% 2520	100.0% 56.6% 164	100.0% 43.4% 126	100.0% 100.0% 290	100.0% 67.9% 318	100.0% 32.1% 150	100.0% 100.0% 468

Table B-2a

CHEMISTRY GRADUATES
by EMPLOYMENT STATUS, CITIZENSHIP, and DEGREE
1993 ACS Starting Salary Survey

	Citizenship				Total
	U.S. Native	U.S. Naturalized	U.S. Permanent Resident	Other Visa	
Bachelors					
Full-time in Chemistry	25.2% 530	21.6% 25	30.4% 21	5.3% 2	24.8% 578
Full-time in Non-Chemistry	7.4% 155	3.4% 4	7.2% 5	10.5% 4	7.2% 168
Fellowship	29.2% 615	18.1% 21	14.5% 10	47.4% 18	28.5% 664
Seeking Employment	13.6% 286	15.5% 18	20.3% 14	13.2% 5	13.9% 323
Not Seeking Employment	24.6% 517	41.4% 48	27.5% 19	23.7% 9	25.5% 593
Masters					
Full-time in Chemistry	42.2% 79	40.0% 2	37.5% 6	34.6% 27	39.9% 114
Full-time in Non-Chemistry	7.0% 13	.0% 0	.0% 0	3.8% 3	5.6% 16
Fellowship	28.9% 54	40.0% 2	25.0% 4	44.9% 35	33.2% 95
Seeking Employment	8.6% 16	20.0% 1	31.3% 5	14.1% 11	11.5% 33
Not Seeking Employment	13.4% 25	.0% 0	6.3% 1	2.6% 2	9.8% 28
Doctorate					
Full-time in Chemistry	43.4% 137	35.7% 5	38.8% 19	30.1% 31	39.8% 192
Full-time in Non-Chemistry	1.6% 5	7.1% 1	2.0% 1	1.0% 1	1.7% 8
Fellowship	39.6% 125	35.7% 5	26.5% 13	47.6% 49	39.8% 192
Seeking Employment	12.0% 38	21.4% 3	32.7% 16	21.4% 22	16.4% 79
Not Seeking Employment	3.5% 11	.0% 0	.0% 0	.0% 0	2.3% 11
Total	100.0% 84.2% 2606	100.0% 4.4% 135	100.0% 4.3% 134	100.0% 7.1% 219	100.0% 100.0% 3094

Table B-2b

CHEMISTRY GRADUATES
by PLANS FOR FURTHER STUDIES IN FALL 1993, CITIZENSHIP, and DEGREE
1993 ACS Starting Salary Survey

	Citizenship				Total
	U.S. Native	U.S. Natural-ized	U.S. Permanent Resident	Other Visa	
Pursue Advanced Studies in Fall 1993					
Bachelors					
Yes, full-time	53.6% 1217	55.5% 71	48.7% 38	71.8% 28	53.8% 1354
Yes, part-time	8.5% 194	8.6% 11	9.0% 7	7.7% 3	8.5% 215
No	37.9% 861	35.9% 46	42.3% 33	20.5% 8	37.7% 948
Masters					
Yes, full-time	38.2% 73	33.3% 2	40.0% 6	54.4% 43	42.6% 124
Yes, part-time	7.9% 15	.0% 0	20.0% 3	6.3% 5	7.9% 23
No	53.9% 103	66.7% 4	40.0% 6	39.2% 31	49.5% 144
Doctorate					
Yes, full-time	13.7% 43	15.4% 2	8.9% 4	14.7% 14	13.5% 63
Yes, part-time	1.3% 4	.0% 0	2.2% 1	2.1% 2	1.5% 7
No	85.0% 267	84.6% 11	88.9% 40	83.2% 79	85.0% 397
Total	100.0% 84.8% 2777	100.0% 4.5% 147	100.0% 4.2% 138	100.0% 6.5% 213	100.0% 100.0% 3275

Table B-3a

BACHELORS CHEMISTRY GRADUATES
by EMPLOYMENT STATUS and ETHNICITY
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Full-Time in Chemistry	28.6% 4	21.9% 16	9.3% 4	18.0% 20	7.8% 5	35.1% 13	26.2% 510	16.7% 5	24.9% 577
Full-Time in Non-Chemistry	7.1% 1	6.8% 5	.0% 0	4.5% 5	12.5% 8	16.2% 6	7.2% 140	.0% 0	7.1% 165
Fellowship	21.4% 3	32.9% 24	18.6% 8	20.7% 23	15.6% 10	16.2% 6	30.1% 586	13.3% 4	28.6% 664
Seeking Employment	21.4% 3	6.8% 5	14.0% 6	16.2% 18	31.3% 20	13.5% 5	13.1% 255	33.3% 10	13.9% 322
Not Seeking Employment	21.4% 3	31.5% 23	58.1% 25	40.5% 45	32.8% 21	18.9% 7	23.4% 455	36.7% 11	25.5% 590
Total	100.0% .6% 14	100.0% 3.1% 73	100.0% 1.9% 43	100.0% 4.8% 111	100.0% 2.8% 64	100.0% 1.6% 37	100.0% 84.0% 1946	100.0% 1.3% 30	100.0% 100.0% 2318

Table B-3a (continued)

MASTERS CHEMISTRY GRADUATES
by EMPLOYMENT STATUS and ETHNICITY
1993 ACS Starting Salary Survey

	Race							Total
	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Full-Time in Chemistry	40.0% 24	60.0% 3	27.3% 3	50.0% 6	40.0% 2	39.6% 74	50.0% 1	40.1% 113
Full-Time in Non-Chemistry	3.3% 2	.0% 0	.0% 0	.0% 0	.0% 0	7.0% 13	.0% 0	5.3% 15
Fellowship	36.7% 22	20.0% 1	45.5% 5	16.7% 2	60.0% 3	32.1% 60	.0% 0	33.0% 93
Seeking Employment	18.3% 11	20.0% 1	18.2% 2	16.7% 2	.0% 0	8.6% 16	50.0% 1	11.7% 33
Not Seeking Employment	1.7% 1	.0% 0	9.1% 1	16.7% 2	.0% 0	12.8% 24	.0% 0	9.9% 28
Total	100.0% 21.3% 60	100.0% 1.8% 5	100.0% 3.9% 11	100.0% 4.3% 12	100.0% 1.8% 5	100.0% 66.3% 187	100.0% .7% 2	100.0% 100.0% 282

Table B-3a (continued)

PhD CHEMISTRY GRADUATES
by EMPLOYMENT STATUS and ETHNICITY
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Full-Time in Chemistry	50.0% 1	32.0% 32	33.3% 3	26.9% 7	90.0% 9	40.0% 2	42.5% 135	12.5% 1	39.7% 190
Full-Time in Non-Chemistry	.0% 0	2.0% 2	.0% 0	.0% 0	.0% 0	.0% 0	1.3% 4	12.5% 1	1.5% 7
Fellowship	50.0% 1	42.0% 42	33.3% 3	38.5% 10	.0% 0	60.0% 3	40.3% 128	50.0% 4	40.0% 191
Seeking Employment	.0% 0	24.0% 24	33.3% 3	30.8% 8	10.0% 1	.0% 0	12.9% 41	25.0% 2	16.5% 79
Not Seeking Employment	.0% 0	.0% 0	.0% 0	3.8% 1	.0% 0	.0% 0	3.1% 10	.0% 0	2.3% 11
Total	100.0% .4% 2	100.0% 20.9% 100	100.0% 1.9% 9	100.0% 5.4% 26	100.0% 2.1% 10	100.0% 1.0% 5	100.0% 66.5% 318	100.0% 1.7% 8	100.0% 100.0% 478

Table B-3b

CHEMISTRY GRADUATES
by PLANS FOR FURTHER STUDIES IN FALL 1993, ETHNICITY, and DEGREE
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Bachelors									
Pursue Advanced Studies in Fall 1993									
Yes, full-time	50.0% 7	60.0% 48	75.6% 34	55.7% 68	54.1% 40	44.2% 19	53.3% 1117	52.9% 18	53.9% 1351
Yes, part-time	7.1% 1	7.5% 6	2.2% 1	6.6% 8	9.5% 7	14.0% 6	8.5% 179	14.7% 5	8.5% 213
No	42.9% 6	32.5% 26	22.2% 10	37.7% 46	36.5% 27	41.9% 18	38.1% 799	32.4% 11	37.6% 943
Total	100.0% .6% 14	100.0% 3.2% 80	100.0% 1.8% 45	100.0% 4.9% 122	100.0% 3.0% 74	100.0% 1.7% 43	100.0% 83.6% 2095	100.0% 1.4% 34	100.0% 100.0% 2507
Masters									
Yes, full-time	.0% 0	45.8% 27	20.0% 1	58.3% 7	35.7% 5	60.0% 3	41.1% 78	50.0% 1	42.5% 122
Yes, part-time	.0% 0	10.2% 6	.0% 0	8.3% 1	21.4% 3	.0% 0	6.8% 13	.0% 0	8.0% 23
No	.0% 0	44.1% 26	80.0% 4	33.3% 4	42.9% 6	40.0% 2	52.1% 99	50.0% 1	49.5% 142
Total	.0% .0% 0	100.0% 20.6% 59	100.0% 1.7% 5	100.0% 4.2% 12	100.0% 4.9% 14	100.0% 1.7% 5	100.0% 66.2% 190	100.0% .7% 2	100.0% 100.0% 287

Table B-3b (continued)

CHEMISTRY GRADUATES
by PLANS FOR FURTHER STUDIES IN FALL 1993, ETHNICITY, and DEGREE
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Pursue Advanced Studies in Fall 1993									
Doctorate									
Yes, full-time	.0% 0	12.8% 12	25.0% 2	8.7% 2	.0% 0	.0% 0	14.3% 45	11.1% 1	13.4% 62
Yes, part-time	.0% 0	2.1% 2	.0% 0	4.3% 1	.0% 0	.0% 0	1.3% 4	.0% 0	1.5% 7
No	100.0% 2	85.1% 80	75.0% 6	87.0% 20	100.0% 9	100.0% 4	84.4% 265	88.9% 8	85.1% 394
Total	100.0% .4% 2	100.0% 20.3% 94	100.0% 1.7% 8	100.0% 5.0% 23	100.0% 1.9% 9	100.0% .9% 4	100.0% 67.8% 314	100.0% 1.9% 9	100.0% 100.0% 463

Table B-4a

BS CHEMISTRY GRADUATES
by EMPLOYMENT STATUS and CERTIFICATION
1993 ACS Starting Salary Survey

	CURRICULUM APPROVED?		Total
	No	Yes	
Full-Time in Chemistry	24.5% 299	25.1% 279	24.8% 578
Full-Time in Non-Chemistry	9.2% 112	5.0% 56	7.2% 168
Fellowship	19.5% 237	38.5% 428	28.5% 665
Seeking Employment	16.0% 195	11.8% 131	14.0% 326
Not Seeking Employment	30.8% 375	19.6% 218	25.5% 593
Total	100.0% 52.3% 1218	100.0% 47.7% 1112	100.0% 100.0% 2330

Table B-4b

BACHELORS CHEMISTRY GRADUATES
by PLANS FOR FURTHER STUDIES IN FALL 1993 and CERTIFICATION
1993 ACS Starting Salary Survey

	CURRICULUM APPROVED?		Total
	No	Yes	
Pursue Advanced Studies in Fall 1993			
Yes, full-time	40.8% 855	58.1% 687	47.0% 1542
Yes, part-time	7.9% 165	6.8% 80	7.5% 245
No	51.4% 1078	35.2% 416	45.5% 1494
Total	100.0% 63.9% 2098	100.0% 36.1% 1183	100.0% 100.0% 3281

Table B-5

MASTERS CHEMISTRY GRADUATES
by EMPLOYMENT STATUS and DEGREE SPECIALTY
1993 ACS Starting Salary Survey

	FT IN CHEM	FT IN NONCHEM	FELLOW-SHIP	SEEKING EMPL	NOT SEEK EMPL	Total
Degree Field						
Biochemistry	11.4% 39.4% 13	25.0% 12.1% 4	7.4% 21.2% 7	15.2% 15.2% 5	14.3% 12.1% 4	11.5% 100.0% 33
General chem	10.5% 42.9% 12	37.5% 21.4% 6	4.2% 14.3% 4	12.1% 14.3% 4	7.1% 7.1% 2	9.8% 100.0% 28
Analytical chem	28.1% 68.1% 32	.0% .0% 0	9.5% 19.1% 9	12.1% 8.5% 4	7.1% 4.3% 2	16.4% 100.0% 47
Inorganic chem	6.1% 28.0% 7	.0% .0% 0	12.6% 48.0% 12	6.1% 8.0% 2	14.3% 16.0% 4	8.7% 100.0% 25
Organic chem	26.3% 39.0% 30	18.8% 3.9% 3	28.4% 35.1% 27	33.3% 14.3% 11	21.4% 7.8% 6	26.9% 100.0% 77
Physical chem	7.9% 16.7% 9	18.8% 5.6% 3	32.6% 57.4% 31	12.1% 7.4% 4	25.0% 13.0% 7	18.9% 100.0% 54
Polymer chem	7.0% 61.5% 8	.0% .0% 0	2.1% 15.4% 2	6.1% 15.4% 2	3.6% 7.7% 1	4.5% 100.0% 13
Other chem	2.6% 33.3% 3	.0% .0% 0	3.2% 33.3% 3	3.0% 11.1% 1	7.1% 22.2% 2	3.1% 100.0% 9
Total	100.0% 39.9% 114	100.0% 5.6% 16	100.0% 33.2% 95	100.0% 11.5% 33	100.0% 9.8% 28	100.0% 100.0% 286

Table B-6

PhD CHEMISTRY GRADUATES
by EMPLOYMENT STATUS and DEGREE SPECIALTY
1993 ACS Starting Salary Survey

	FT IN CHEM	FT IN NONCHEM	FELLOW-SHIP	SEEKING EMPL	NOT SEEK EMPL	Total
Degree Field						
Biochemistry	6.7% 23.6% 13	.0% .0% 0	17.6% 61.8% 34	8.9% 12.7% 7	9.1% 1.8% 1	11.4% 100.0% 55
General chem	.0% .0% 0	.0% .0% 0	.0% .0% 0	1.3% 100.0% 1	.0% .0% 0	.2% 100.0% 1
Analytical chem	26.9% 61.2% 52	12.5% 1.2% 1	11.4% 25.9% 22	11.4% 10.6% 9	9.1% 1.2% 1	17.6% 100.0% 85
Inorganic chem	13.5% 39.4% 26	25.0% 3.0% 2	12.4% 36.4% 24	16.5% 19.7% 13	9.1% 1.5% 1	13.6% 100.0% 66
Organic chem	27.5% 38.1% 53	12.5% .7% 1	32.1% 44.6% 62	25.3% 14.4% 20	27.3% 2.2% 3	28.7% 100.0% 139
Physical chem	16.6% 30.2% 32	37.5% 2.8% 3	21.2% 38.7% 41	31.6% 23.6% 25	45.5% 4.7% 5	21.9% 100.0% 106
Polymer chem	7.3% 60.9% 14	12.5% 4.3% 1	2.1% 17.4% 4	5.1% 17.4% 4	.0% .0% 0	4.8% 100.0% 23
Other chem	1.6% 33.3% 3	.0% .0% 0	3.1% 66.7% 6	.0% .0% 0	.0% .0% 0	1.9% 100.0% 9
Total	100.0% 39.9% 193	100.0% 1.7% 8	100.0% 39.9% 193	100.0% 16.3% 79	100.0% 2.3% 11	100.0% 100.0% 484

Table B-7a

CHEMICAL ENGINEERING GRADUATES
by EMPLOYMENT STATUS, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Full-Time in Chemistry	42.4% 197	54.2% 141	46.6% 338	30.1% 22	40.0% 8	32.3% 30	53.8% 35	71.4% 5	55.6% 40
Full-Time in Non-Chemistry	7.5% 35	8.1% 21	7.7% 56	5.5% 4	5.0% 1	5.4% 5	4.6% 3	.0% 0	4.2% 3
Fellowship	15.7% 73	9.6% 25	13.5% 98	45.2% 33	25.0% 5	40.9% 38	16.9% 11	14.3% 1	16.7% 12
Seeking Employment	24.1% 112	19.6% 51	22.5% 163	11.0% 8	15.0% 3	11.8% 11	21.5% 14	14.3% 1	20.8% 15
Not Seeking Employment	10.3% 48	8.5% 22	9.7% 70	8.2% 6	15.0% 3	9.7% 9	3.1% 2	.0% 0	2.8% 2
Total	100.0% 64.1% 465	100.0% 35.9% 260	100.0% 100.0% 725	100.0% 78.5% 73	100.0% 21.5% 20	100.0% 100.0% 93	100.0% 90.3% 65	100.0% 9.7% 7	100.0% 100.0% 72

Table B-7b

CHEMICAL ENGINEERING GRADUATES
by PLANS FOR FURTHER STUDIES IN FALL 1993, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Pursue Advanced Studies in Fall 1993									
Yes, full-time	28.6% 138	18.4% 50	24.9% 188	56.2% 41	45.0% 9	53.8% 50	6.5% 4	.0% 0	5.8% 4
Yes, part-time	6.6% 32	8.8% 24	7.4% 56	1.4% 1	10.0% 2	3.2% 3	.0% 0	.0% 0	.0% 0
No	64.8% 313	72.8% 198	67.7% 511	42.5% 31	45.0% 9	43.0% 40	93.5% 58	100.0% 7	94.2% 65
Total	100.0% 64.0% 483	100.0% 36.0% 272	100.0% 100.0% 755	100.0% 78.5% 73	100.0% 21.5% 20	100.0% 100.0% 93	100.0% 89.9% 62	100.0% 10.1% 7	100.0% 100.0% 69

Table B-8a

CHEMICAL ENGINEERING GRADUATES
by EMPLOYMENT STATUS, CITIZENSHIP, and DEGREE
1993 ACS Starting Salary Survey

	Citizenship				Total
	U.S. Native	U.S. Natural-ized	U.S. Permanent Resident	Other Visa	
Bachelors					
Full-time in Chemistry	48.9% 326	22.9% 8	30.0% 3	8.3% 1	46.7% 338
Full-time in Non-Chemistry	7.9% 53	5.7% 2	10.0% 1	.0% 0	7.7% 56
Fellowship	12.7% 85	22.9% 8	10.0% 1	33.3% 4	13.5% 98
Seeking Employment	21.9% 146	25.7% 9	20.0% 2	41.7% 5	22.4% 162
Not Seeking Employment	8.5% 57	22.9% 8	30.0% 3	16.7% 2	9.7% 70
Total	100.0% 92.1% 667	100.0% 4.8% 35	100.0% 1.4% 10	100.0% 1.7% 12	100.0% 100.0% 724
Masters					
Full-time in Chemistry	45.7% 21	50.0% 3	25.0% 2	12.1% 4	32.3% 30
Full-time in Non-Chemistry	6.5% 3	16.7% 1	.0% 0	3.0% 1	5.4% 5
Fellowship	34.8% 16	16.7% 1	37.5% 3	54.5% 18	40.9% 38
Seeking Employment	6.5% 3	16.7% 1	25.0% 2	15.2% 5	11.8% 11
Not Seeking Employment	6.5% 3	.0% 0	12.5% 1	15.2% 5	9.7% 9
Total	100.0% 49.5% 46	100.0% 6.5% 6	100.0% 8.6% 8	100.0% 35.5% 33	100.0% 100.0% 93
Doctorate					
Full-time in Chemistry	59.0% 23	.0% 0	80.0% 4	48.1% 13	55.6% 40
Full-time in Non-Chemistry	5.1% 2	.0% 0	.0% 0	3.7% 1	4.2% 3
Fellowship	12.8% 5	.0% 0	.0% 0	25.9% 7	16.7% 12
Seeking Employment	20.5% 8	100.0% 1	.0% 0	22.2% 6	20.8% 15
Not Seeking Employment	2.6% 1	.0% 0	20.0% 1	.0% 0	2.8% 2
Total	100.0% 54.2% 39	100.0% 1.4% 1	100.0% 6.9% 5	100.0% 37.5% 27	100.0% 100.0% 72

Table B-8b

CHEMICAL ENGINEERING
by PLANS FOR FURTHER STUDIES IN FALL 1993, CITIZENSHIP, and DEGREE
1993 ACS Starting Salary Survey

	Citizenship				Total
	U.S. Native	U.S. Natural-ized	U.S. Permanent Resident	Other Visa	
Pursue Advanced Studies in Fall 1993					
Bachelors					
Yes, full-time	22.5% 156	47.4% 18	50.0% 5	69.2% 9	24.9% 188
Yes, part-time	7.9% 55	2.6% 1	.0% 0	.0% 0	7.4% 56
No	69.6% 482	50.0% 19	50.0% 5	30.8% 4	67.6% 510
Total	100.0% 91.9% 693	100.0% 5.0% 38	100.0% 1.3% 10	100.0% 1.7% 13	100.0% 100.0% 754
Masters					
Yes, full-time	41.3% 19	16.7% 1	75.0% 6	72.7% 24	53.8% 50
Yes, part-time	2.2% 1	16.7% 1	.0% 0	3.0% 1	3.2% 3
No	56.5% 26	66.7% 4	25.0% 2	24.2% 8	43.0% 40
Total	100.0% 49.5% 46	100.0% 6.5% 6	100.0% 8.6% 8	100.0% 35.5% 33	100.0% 100.0% 93
Doctorate					
Yes, full-time	5.1% 2	.0% 0	20.0% 1	4.2% 1	5.8% 4
No	94.9% 37	100.0% 1	80.0% 4	95.8% 23	94.2% 65
Total	100.0% 56.5% 39	100.0% 1.4% 1	100.0% 7.2% 5	100.0% 34.8% 24	100.0% 100.0% 69

Table B-9a

BACHELORS CHEMICAL ENGINEERING GRADUATES
by EMPLOYMENT STATUS and ETHNICITY
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Full-Time in Chemistry	.0% 0	20.8% 5	28.6% 2	24.0% 6	50.0% 10	46.7% 7	49.4% 306	.0% 0	46.6% 336
Full-Time in Non-Chemistry	33.3% 1	8.3% 2	.0% 0	8.0% 2	15.0% 3	6.7% 1	7.6% 47	.0% 0	7.8% 56
Fellowship	33.3% 1	29.2% 7	28.6% 2	20.0% 5	15.0% 3	6.7% 1	12.1% 75	28.6% 2	13.3% 96
Seeking Employment	33.3% 1	25.0% 6	14.3% 1	28.0% 7	10.0% 2	26.7% 4	22.4% 139	42.9% 3	22.6% 163
Not Seeking Employment	.0% 0	16.7% 4	28.6% 2	20.0% 5	10.0% 2	13.3% 2	8.5% 53	28.6% 2	9.7% 70
Total	100.0% .4% 3	100.0% 3.3% 24	100.0% 1.0% 7	100.0% 3.5% 25	100.0% 2.8% 20	100.0% 2.1% 15	100.0% 86.0% 620	100.0% 1.0% 7	100.0% 100.0% 721

Table B-9a (continued)

MASTERS CHEMICAL ENGINEERING GRADUATES
by EMPLOYMENT STATUS and ETHNICITY
1993 ACS Starting Salary Survey

	Race					Total
	Chinese	Subcont Indian	Other Asian	Hisp	White	
Full-Time in Chemistry	14.3% 2	10.0% 1	40.0% 4	.0% 0	41.8% 23	32.3% 30
Full-Time in Non-Chemistry	.0% 0	10.0% 1	10.0% 1	.0% 0	5.5% 3	5.4% 5
Fellowship	35.7% 5	60.0% 6	20.0% 2	75.0% 3	40.0% 22	40.9% 38
Seeking Employment	35.7% 5	20.0% 2	10.0% 1	.0% 0	5.5% 3	11.8% 11
Not Seeking Employment	14.3% 2	.0% 0	20.0% 2	25.0% 1	7.3% 4	9.7% 9
Total	100.0% 15.1% 14	100.0% 10.8% 10	100.0% 10.8% 10	100.0% 4.3% 4	100.0% 59.1% 55	100.0% 100.0% 93

Table B-9a (continued)

PhD CHEMICAL ENGINEERING GRADUATES
by EMPLOYMENT STATUS and ETHNICITY
1993 ACS Starting Salary Survey

	Race						Total
	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	
Full-Time in Chemistry	.0% 0	66.7% 4	54.5% 6	100.0% 1	100.0% 2	58.7% 27	56.3% 40
Full-Time in Non-Chemistry	.0% 0	.0% 0	9.1% 1	.0% 0	.0% 0	4.3% 2	4.2% 3
Fellowship	20.0% 1	.0% 0	18.2% 2	.0% 0	.0% 0	19.6% 9	16.9% 12
Seeking Employment	60.0% 3	33.3% 2	18.2% 2	.0% 0	.0% 0	15.2% 7	19.7% 14
Not Seeking Employment	20.0% 1	.0% 0	.0% 0	.0% 0	.0% 0	2.2% 1	2.8% 2
Total	100.0% 7.0% 5	100.0% 8.5% 6	100.0% 15.5% 11	100.0% 1.4% 1	100.0% 2.8% 2	100.0% 64.8% 46	100.0% 100.0% 71

Table B-9b

CHEMICAL ENGINEERING GRADUATES
by PLANS FOR FURTHER STUDIES IN FALL 1993, ETHNICITY, and DEGREE
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Pursue Advanced Studies in Fall 1993									
Bachelors									
Yes, full-time	33.3% 1	62.5% 15	57.1% 4	36.7% 11	25.0% 5	23.5% 4	22.1% 142	57.1% 4	24.8% 186
Yes, part-time	.0% 0	.0% 0	14.3% 1	10.0% 3	.0% 0	5.9% 1	7.9% 51	.0% 0	7.5% 56
No	66.7% 2	37.5% 9	28.6% 2	53.3% 16	75.0% 15	70.6% 12	69.9% 449	42.9% 3	67.7% 508
Total	100.0% .4% 3	100.0% 3.2% 24	100.0% .9% 7	100.0% 4.0% 30	100.0% 2.7% 20	100.0% 2.3% 17	100.0% 85.6% 642	100.0% .9% 7	100.0% 100.0% 750
Masters									
Yes, full-time	.0% 0	66.7% 10	60.0% 6	33.3% 3	.0% 0	100.0% 4	49.1% 27	.0% 0	53.8% 50
Yes, part-time	.0% 0	6.7% 1	.0% 0	11.1% 1	.0% 0	.0% 0	1.8% 1	.0% 0	3.2% 3
No	.0% 0	26.7% 4	40.0% 4	55.6% 5	.0% 0	.0% 0	49.1% 27	.0% 0	43.0% 40
Total	.0% .0% 0	100.0% 16.1% 15	100.0% 10.8% 10	100.0% 9.7% 9	.0% .0% 0	100.0% 4.3% 4	100.0% 59.1% 55	.0% .0% 0	100.0% 100.0% 93

Table B-9b (continued)

CHEMICAL ENGINEERING GRADUATES
by PLANS FOR FURTHER STUDIES IN FALL 1993, ETHNICITY, and DEGREE
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Pursue Advanced Studies in Fall 1993									
Doctorate									
Yes, full-time	.0% 0	20.0% 1	.0% 0	.0% 0	.0% 0	.0% 0	6.8% 3	.0% 0	5.9% 4
No	.0% 0	80.0% 4	100.0% 5	100.0% 11	100.0% 1	100.0% 2	93.2% 41	.0% 0	94.1% 64
Total	.0% .0% 0	100.0% 7.4% 5	100.0% 7.4% 5	100.0% 16.2% 11	100.0% 1.5% 1	100.0% 2.9% 2	100.0% 64.7% 44	.0% .0% 0	100.0% 100.0% 68

Table C-1

CHEMISTRY GRADUATES WHO PLAN PART-TIME STUDIES IN FALL 1993
by FIELD OF ADVANCED STUDY, DEGREE, and SEX
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Field of Further Studies									
Chemistry	39.7% 54	20.5% 16	32.7% 70	50.0% 6	18.2% 2	34.8% 8	60.0% 3	.0% 0	42.9% 3
Other phys sci	4.4% 6	2.6% 2	3.7% 8	.0% 0	.0% 0	.0% 0	20.0% 1	.0% 0	14.3% 1
Chem or biochem eng	2.2% 3	5.1% 4	3.3% 7	8.3% 1	.0% 0	4.3% 1	.0% 0	.0% 0	.0% 0
Other eng	.0% 0	2.6% 2	.9% 2	.0% 0	9.1% 1	4.3% 1	.0% 0	.0% 0	.0% 0
Biochemistry	12.5% 17	14.1% 11	13.1% 28	8.3% 1	27.3% 3	17.4% 4	.0% 0	.0% 0	.0% 0
Life science	5.9% 8	6.4% 5	6.1% 13	8.3% 1	9.1% 1	8.7% 2	.0% 0	.0% 0	.0% 0
Medicine	9.6% 13	6.4% 5	8.4% 18	8.3% 1	.0% 0	4.3% 1	.0% 0	.0% 0	.0% 0
Dentistry	.0% 0	1.3% 1	.5% 1	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Pharmacy	1.5% 2	2.6% 2	1.9% 4	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Business	10.3% 14	9.0% 7	9.8% 21	.0% 0	.0% 0	.0% 0	.0% 0	50.0% 1	14.3% 1
Education	4.4% 6	12.8% 10	7.5% 16	.0% 0	18.2% 2	8.7% 2	.0% 0	.0% 0	.0% 0

Table C-1 (continued)

CHEMISTRY GRADUATES WHO PLAN PART-TIME STUDIES IN FALL 1993
by FIELD OF ADVANCED STUDY, DEGREE, and SEX
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Law	.7% 1	1.3% 1	.9% 2	.0% 0	9.1% 1	4.3% 1	.0% 0	.0% 0	.0% 0
Other	8.8% 12	15.4% 12	11.2% 24	16.7% 2	9.1% 1	13.0% 3	20.0% 1	50.0% 1	28.6% 2
Total	100.0% 136	100.0% 78	100.0% 214	100.0% 12	100.0% 11	100.0% 23	100.0% 5	100.0% 2	100.0% 7

Table C-2

BS CHEMISTRY GRADUATES WHO PLAN PART-TIME STUDIES IN FALL 1993
by FIELD OF ADVANCED STUDY and CERTIFICATION
1993 ACS Starting Salary Survey

	CURRICULUM APPROVED?		Total
	No	Yes	
Field of Further Studies			
Chemistry	25.4% 34	45.0% 36	32.7% 70
Other phys sci	5.2% 7	1.3% 1	3.7% 8
Chem or biochem eng	2.2% 3	5.0% 4	3.3% 7
Other eng	.7% 1	1.3% 1	.9% 2
Biochemistry	14.2% 19	11.3% 9	13.1% 28
Life science	6.0% 8	6.3% 5	6.1% 13
Medicine	10.4% 14	5.0% 4	8.4% 18
Dentistry	.7% 1	.0% 0	.5% 1
Pharmacy	3.0% 4	.0% 0	1.9% 4
Business	9.7% 13	10.0% 8	9.8% 21
Education	6.7% 9	8.8% 7	7.5% 16
Law	.7% 1	1.3% 1	.9% 2
Other	14.9% 20	5.0% 4	11.2% 24
Total	100.0% 134	100.0% 80	100.0% 214

Table C-3

CHEMICAL ENGINEERING GRADUATES WHO PLAN PART-TIME STUDIES IN FALL 1993
by FIELD OF ADVANCED STUDY, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters		
	Male	Female	Total	Male	Female	Total
Field of Further Studies						
Chemistry	3.2% 1	.0% 0	1.8% 1	.0% 0	.0% 0	.0% 0
Other phys sci	6.5% 2	4.2% 1	5.5% 3	.0% 0	.0% 0	.0% 0
Chem or biochem eng	45.2% 14	20.8% 5	34.5% 19	100.0% 1	50.0% 1	66.7% 2
Other eng	9.7% 3	25.0% 6	16.4% 9	.0% 0	.0% 0	.0% 0
Biochemistry	3.2% 1	.0% 0	1.8% 1	.0% 0	.0% 0	.0% 0
Medicine	.0% 0	4.2% 1	1.8% 1	.0% 0	.0% 0	.0% 0
Business	25.8% 8	29.2% 7	27.3% 15	.0% 0	50.0% 1	33.3% 1
Education	.0% 0	8.3% 2	3.6% 2	.0% 0	.0% 0	.0% 0
Law	3.2% 1	.0% 0	1.8% 1	.0% 0	.0% 0	.0% 0
Other	3.2% 1	8.3% 2	5.5% 3	.0% 0	.0% 0	.0% 0
Total	100.0% 31	100.0% 24	100.0% 55	100.0% 1	100.0% 2	100.0% 3

Table C-4

CHEMISTRY GRADUATES WHO PLAN FULL-TIME STUDIES IN FALL 1993
by FIELD OF ADVANCED STUDY, DEGREE, and SEX
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Field of Further Studies									
Chemistry	43.8% 329	39.2% 235	41.7% 564	79.7% 59	77.6% 38	78.9% 97	69.4% 34	69.2% 9	69.4% 43
Other phys sci	1.1% 8	1.8% 11	1.4% 19	2.7% 2	.0% 0	1.6% 2	2.0% 1	.0% 0	1.6% 1
Chem or biochem eng	1.7% 13	1.5% 9	1.6% 22	1.4% 1	2.0% 1	1.6% 2	.0% 0	.0% 0	.0% 0
Other eng	1.5% 11	2.2% 13	1.8% 24	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Biochemistry	7.6% 57	13.5% 81	10.2% 138	8.1% 6	12.2% 6	9.8% 12	16.3% 8	15.4% 2	16.1% 10
Life science	2.7% 20	2.7% 16	2.7% 36	.0% 0	.0% 0	.0% 0	6.1% 3	15.4% 2	8.1% 5
Medicine	32.4% 244	22.3% 134	28.0% 378	5.4% 4	2.0% 1	4.1% 5	2.0% 1	.0% 0	1.6% 1
Dentistry	1.6% 12	1.5% 9	1.6% 21	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Pharmacy	2.4% 18	5.0% 30	3.6% 48	.0% 0	4.1% 2	1.6% 2	.0% 0	.0% 0	.0% 0
Business	.0% 0	.7% 4	.3% 4	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0

Table C-4 (continued)

CHEMISTRY GRADUATES WHO PLAN FULL-TIME STUDIES IN FALL 1993
by FIELD OF ADVANCED STUDY, DEGREE, and SEX
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Field of Further Studies									
Education	1.1% 8	1.2% 7	1.1% 15	.0% 0	2.0% 1	.8% 1	.0% 0	.0% 0	.0% 0
Law	.9% 7	1.5% 9	1.2% 16	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Other	3.3% 25	7.0% 42	5.0% 67	2.7% 2	.0% 0	1.6% 2	4.1% 2	.0% 0	3.2% 2
Total	100.0% 752	100.0% 600	100.0% 1352	100.0% 74	100.0% 49	100.0% 123	100.0% 49	100.0% 13	100.0% 62

Table C-5

BS CHEMISTRY GRADUATES WHO PLAN FULL-TIME STUDIES IN FALL 1993
by FIELD OF ADVANCED STUDY and CERTIFICATION
1993 ACS Starting Salary Survey

	CURRICULUM APPROVED?		Total
	No	Yes	
Field of Further Studies			
Chemistry	22.4% 150	60.6% 414	41.7% 564
Other phys sci	.9% 6	1.9% 13	1.4% 19
Chem or biochem eng	1.8% 12	1.5% 10	1.6% 22
Other eng	2.2% 15	1.3% 9	1.8% 24
Biochemistry	13.2% 88	7.3% 50	10.2% 138
Life science	3.9% 26	1.5% 10	2.7% 36
Medicine	40.2% 269	16.0% 109	28.0% 378
Dentistry	2.5% 17	.6% 4	1.6% 21
Pharmacy	3.9% 26	3.2% 22	3.6% 48
Business	.4% 3	.1% 1	.3% 4
Education	.7% 5	1.5% 10	1.1% 15
Law	1.5% 10	.9% 6	1.2% 16
Other	6.3% 42	3.7% 25	5.0% 67
Total	100.0% 669	100.0% 683	100.0% 1352

Table C-6

CHEMICAL ENGINEERING GRADUATES WHO PLAN FULL-TIME STUDIES IN FALL 1993
by FIELD OF ADVANCED STUDY, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters		
	Male	Female	Total	Male	Female	Total
Field of Further Studies						
Chemistry	2.2% 3	4.0% 2	2.7% 5	2.5% 1	.0% 0	2.0% 1
Other phys sci	.7% 1	2.0% 1	1.1% 2	.0% 0	.0% 0	.0% 0
Chem or biochem eng	71.7% 99	66.0% 33	70.2% 132	87.5% 35	88.9% 8	87.8% 43
Other eng	8.0% 11	8.0% 4	8.0% 15	7.5% 3	11.1% 1	8.2% 4
Biochemistry	.7% 1	.0% 0	.5% 1	2.5% 1	.0% 0	2.0% 1
Life science	.7% 1	.0% 0	.5% 1	.0% 0	.0% 0	.0% 0
Medicine	10.1% 14	6.0% 3	9.0% 17	.0% 0	.0% 0	.0% 0
Business	2.2% 3	2.0% 1	2.1% 4	.0% 0	.0% 0	.0% 0
Law	2.2% 3	4.0% 2	2.7% 5	.0% 0	.0% 0	.0% 0
Other	1.4% 2	8.0% 4	3.2% 6	.0% 0	.0% 0	.0% 0
Total	100.0% 138	100.0% 50	100.0% 188	100.0% 40	100.0% 9	100.0% 49

Table C-7

BS CHEMISTRY GRADUATES WHO ARE NOT EMPLOYED and NOT SEEKING EMPLOYMENT
by SEX and PLANS FOR FURTHER STUDIES
1993 Starting Salary Survey

	Sex		Total
	Male	Female	
Pursue Advanced Studies in Fall 1993			
Yes, full-time	85.3% 272	86.5% 237	85.8% 509
Yes, part-time	3.8% 12	4.4% 12	4.0% 24
No	11.0% 35	9.1% 25	10.1% 60
Total	100.0% 319	100.0% 274	100.0% 593

Table C-8

BS CHEMICAL ENGINEERING GRADUATES
WHO ARE NOT EMPLOYED AND NOT SEEKING EMPLOYMENT
by SEX and PLANS FOR FURTHER STUDIES
1993 Starting Salary Survey

	Sex		Total
	Male	Female	
Pursue Advanced Studies in Fall 1993			
Yes, full-time	89.6% 43	86.4% 19	88.6% 62
Yes, part-time	.0% 0	4.5% 1	1.4% 1
No	10.4% 5	9.1% 2	10.0% 7
Total	100.0% 48	100.0% 22	100.0% 70

Table D-1

BS CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES
by AGE and SEX
1993 Starting Salary Survey

	FIELD					
	CHEMICAL ENGINEERING			CHEMISTRY		
	Male	Female	Total	Male	Female	Total
AGE						
20 OR UNDER	.6% 3	.7% 2	.7% 5	1.1% 15	.7% 8	.9% 23
21	7.6% 37	8.9% 24	8.1% 61	11.4% 162	15.1% 165	13.0% 327
22	36.6% 177	48.3% 131	40.8% 308	44.1% 628	51.9% 567	47.5% 1195
23	30.8% 149	26.2% 71	29.1% 220	18.0% 257	15.8% 173	17.1% 430
24	9.3% 45	5.9% 16	8.1% 61	7.4% 106	4.3% 47	6.1% 153
25	4.8% 23	3.7% 10	4.4% 33	3.7% 53	1.6% 17	2.8% 70
26	2.3% 11	1.1% 3	1.9% 14	2.5% 36	2.2% 24	2.4% 60
27	.6% 3	.4% 1	.5% 4	2.1% 30	1.4% 15	1.8% 45
28	2.5% 12	1.1% 3	2.0% 15	1.7% 24	1.1% 12	1.4% 36
29	1.4% 7	.0% 0	.9% 7	1.5% 22	.5% 5	1.1% 27
30 to 34	1.9% 9	2.6% 7	2.1% 16	3.4% 48	2.5% 27	3.0% 75
35 to 39	1.0% 5	.7% 2	.9% 7	1.4% 20	2.0% 22	1.7% 42
40 to 49	.6% 3	.4% 1	.5% 4	1.5% 21	.9% 10	1.2% 31
50 to 64	.0% 0	.0% 0	.0% 0	.1% 2	.1% 1	.1% 3
Total	100.0% 484	100.0% 271	100.0% 755	100.0% 1424	100.0% 1093	100.0% 2517

Table D-2

MS CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES
by AGE and SEX
1993 Starting Salary Survey

	FIELD					
	CHEMICAL ENGINEERING			CHEMISTRY		
	Male	Female	Total	Male	Female	Total
AGE						
20 OR UNDER	.0% 0	.0% 0	.0% 0	.6% 1	.0% 0	.3% 1
21	.0% 0	.0% 0	.0% 0	.0% 0	1.6% 2	.7% 2
22	.0% 0	.0% 0	.0% 0	1.8% 3	1.6% 2	1.7% 5
23	4.1% 3	10.5% 2	5.4% 5	1.8% 3	7.9% 10	4.5% 13
24	9.5% 7	5.3% 1	8.6% 8	12.2% 20	15.1% 19	13.4% 39
25	16.2% 12	21.1% 4	17.2% 16	12.2% 20	16.7% 21	14.1% 41
26	13.5% 10	5.3% 1	11.8% 11	9.1% 15	11.9% 15	10.3% 30
27	10.8% 8	15.8% 3	11.8% 11	11.6% 19	6.3% 8	9.3% 27
28	10.8% 8	10.5% 2	10.8% 10	6.1% 10	4.0% 5	5.2% 15
29	14.9% 11	5.3% 1	12.9% 12	8.5% 14	6.3% 8	7.6% 22
30 to 34	14.9% 11	26.3% 5	17.2% 16	25.0% 41	15.9% 20	21.0% 61
35 to 39	1.4% 1	.0% 0	1.1% 1	8.5% 14	6.3% 8	7.6% 22
40 to 49	1.4% 1	.0% 0	1.1% 1	2.4% 4	4.8% 6	3.4% 10
50 to 64	2.7% 2	.0% 0	2.2% 2	.0% 0	1.6% 2	.7% 2
Total	100.0% 74	100.0% 19	100.0% 93	100.0% 164	100.0% 126	100.0% 290

Table D-3

PhD CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES
by AGE and SEX
1993 Starting Salary Survey

	FIELD					
	CHEMICAL ENGINEERING			CHEMISTRY		
	Male	Female	Total	Male	Female	Total
AGE						
22	1.5% 1	.0% 0	1.4% 1	.0% 0	.0% 0	.0% 0
25	.0% 0	.0% 0	.0% 0	.6% 2	1.3% 2	.8% 4
26	3.1% 2	.0% 0	2.8% 2	4.2% 14	5.7% 9	4.6% 23
27	15.4% 10	14.3% 1	15.3% 11	12.5% 42	15.8% 25	13.5% 67
28	15.4% 10	14.3% 1	15.3% 11	21.1% 71	19.0% 30	20.4% 101
29	18.5% 12	14.3% 1	18.1% 13	13.9% 47	12.7% 20	13.5% 67
30 to 34	36.9% 24	42.9% 3	37.5% 27	31.8% 107	32.9% 52	32.1% 159
35 to 39	7.7% 5	14.3% 1	8.3% 6	10.7% 36	9.5% 15	10.3% 51
40 to 49	1.5% 1	.0% 0	1.4% 1	4.7% 16	2.5% 4	4.0% 20
50 to 64	.0% 0	.0% 0	.0% 0	.6% 2	.6% 1	.6% 3
Total	100.0% 65	100.0% 7	100.0% 72	100.0% 337	100.0% 158	100.0% 495

Table D-4

CHEMISTRY POSTDOCTORAL RECIPIENTS
by AGE and SEX
1993 Starting Salary Survey

	Male	Female	Total
AGE			
25	1.1% 2	1.5% 1	1.2% 3
26	3.9% 7	6.0% 4	4.4% 11
27	13.3% 24	9.0% 6	12.1% 30
28	24.9% 45	14.9% 10	22.2% 55
29	16.6% 30	17.9% 12	16.9% 42
30 to 34	26.0% 47	35.8% 24	28.6% 71
35 to 39	11.0% 20	11.9% 8	11.3% 28
40 to 49	2.8% 5	3.0% 2	2.8% 7
50 to 64	.6% 1	.0% 0	.4% 1
Total	100.0% 181	100.0% 67	100.0% 248

Table E-1

FULL-TIME EMPLOYED INEXPERIENCED CHEMISTS by NUMBER OF JOB OFFERS, SEX, and DEGREE 1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Offers of Employment									
1	50.0% 106	47.7% 72	49.0% 178	41.2% 7	25.0% 6	31.7% 13	40.8% 20	47.4% 18	43.7% 38
2	25.0% 53	31.1% 47	27.5% 100	23.5% 4	41.7% 10	34.1% 14	30.6% 15	34.2% 13	32.2% 28
3	17.9% 38	17.2% 26	17.6% 64	29.4% 5	16.7% 4	22.0% 9	18.4% 9	13.2% 5	16.1% 14
4	3.8% 8	2.0% 3	3.0% 11	5.9% 1	12.5% 3	9.8% 4	4.1% 2	2.6% 1	3.4% 3
5	2.4% 5	.0% 0	1.4% 5	.0% 0	4.2% 1	2.4% 1	.0% 0	2.6% 1	1.1% 1
6 or 7	.9% 2	.7% 1	.8% 3	.0% 0	.0% 0	.0% 0	4.1% 2	.0% 0	2.3% 2
8 or 9	.0% 0	.7% 1	.3% 1	.0% 0	.0% 0	.0% 0	2.0% 1	.0% 0	1.1% 1
10 OR MORE	.0% 0	.7% 1	.3% 1	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Total	100.0% 212	100.0% 151	100.0% 363	100.0% 17	100.0% 24	100.0% 41	100.0% 49	100.0% 38	100.0% 87

Table E-2

FULL-TIME EMPLOYED EXPERIENCED CHEMISTS
by NUMBER OF JOB OFFERS, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Offers of Employment									
1	33.8% 45	40.4% 36	36.5% 81	39.6% 19	46.2% 12	41.9% 31	46.9% 30	44.8% 13	46.2% 43
2	36.1% 48	27.0% 24	32.4% 72	33.3% 16	23.1% 6	29.7% 22	32.8% 21	31.0% 9	32.3% 30
3	19.5% 26	25.8% 23	22.1% 49	18.8% 9	23.1% 6	20.3% 15	12.5% 8	10.3% 3	11.8% 11
4	4.5% 6	3.4% 3	4.1% 9	4.2% 2	3.8% 1	4.1% 3	4.7% 3	13.8% 4	7.5% 7
5	2.3% 3	2.2% 2	2.3% 5	2.1% 1	.0% 0	1.4% 1	1.6% 1	.0% 0	1.1% 1
6 or 7	3.0% 4	.0% 0	1.8% 4	2.1% 1	.0% 0	1.4% 1	.0% 0	.0% 0	.0% 0
8 or 9	.8% 1	1.1% 1	.9% 2	.0% 0	3.8% 1	1.4% 1	1.6% 1	.0% 0	1.1% 1
Total	100.0% 133	100.0% 89	100.0% 222	100.0% 48	100.0% 26	100.0% 74	100.0% 64	100.0% 29	100.0% 93

Table E-3

FULL-TIME EMPLOYED INEXPERIENCED CHEMICAL ENGINEERS
by NUMBER OF JOB OFFERS, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Offers of Employment									
1	60.2% 71	49.5% 55	55.0% 126	70.0% 7	33.3% 1	61.5% 8	66.7% 12	100.0% 1	68.4% 13
2	22.0% 26	28.8% 32	25.3% 58	10.0% 1	33.3% 1	15.4% 2	16.7% 3	.0% 0	15.8% 3
3	9.3% 11	11.7% 13	10.5% 24	.0% 0	33.3% 1	7.7% 1	11.1% 2	.0% 0	10.5% 2
4	5.9% 7	6.3% 7	6.1% 14	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
5	.8% 1	1.8% 2	1.3% 3	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
6 or 7	.8% 1	.9% 1	.9% 2	10.0% 1	.0% 0	7.7% 1	.0% 0	.0% 0	.0% 0
8 or 9	.0% 0	.9% 1	.4% 1	.0% 0	.0% 0	.0% 0	5.6% 1	.0% 0	5.3% 1
10 OR MORE	.8% 1	.0% 0	.4% 1	10.0% 1	.0% 0	7.7% 1	.0% 0	.0% 0	.0% 0
Total	100.0% 118	100.0% 111	100.0% 229	100.0% 10	100.0% 3	100.0% 13	100.0% 18	100.0% 1	100.0% 19

Table E-4

FULL-TIME EMPLOYED EXPERIENCED CHEMICAL ENGINEERS
by NUMBER OF JOB OFFERS,SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Offers of Employment									
1	46.3% 44	40.9% 18	44.6% 62	58.3% 7	50.0% 3	55.6% 10	57.9% 11	66.7% 2	59.1% 13
2	25.3% 24	36.4% 16	28.8% 40	25.0% 3	33.3% 2	27.8% 5	21.1% 4	33.3% 1	22.7% 5
3	14.7% 14	15.9% 7	15.1% 21	8.3% 1	16.7% 1	11.1% 2	21.1% 4	.0% 0	18.2% 4
4	7.4% 7	6.8% 3	7.2% 10	8.3% 1	.0% 0	5.6% 1	.0% 0	.0% 0	.0% 0
5	3.2% 3	.0% 0	2.2% 3	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
6 or 7	1.1% 1	.0% 0	.7% 1	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
8 or 9	1.1% 1	.0% 0	.7% 1	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
10 OR MORE	1.1% 1	.0% 0	.7% 1	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Total	100.0% 95	100.0% 44	100.0% 139	100.0% 12	100.0% 6	100.0% 18	100.0% 19	100.0% 3	100.0% 22

Table F-1

CHEMISTRY GRADUATES
by CITIZENSHIP, ETHNICITY, and DEGREE
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Citizenship									
BS									
US Native	100.0% 14	43.8% 35	40.0% 18	31.4% 38	89.0% 65	88.4% 38	97.2% 2038	44.1% 15	90.2% 2261
US Naturalized	.0% 0	27.5% 22	35.6% 16	47.9% 58	1.4% 1	9.3% 4	1.0% 20	20.6% 7	5.1% 128
US Permanent Res Visa	.0% 0	12.5% 10	20.0% 9	14.9% 18	8.2% 6	.0% 0	1.3% 28	20.6% 7	3.1% 78
Other visa	.0% 0	16.3% 13	4.4% 2	5.8% 7	1.4% 1	2.3% 1	.5% 10	14.7% 5	1.6% 39
Total	100.0% .6% 14	100.0% 3.2% 80	100.0% 1.8% 45	100.0% 4.8% 121	100.0% 2.9% 73	100.0% 1.7% 43	100.0% 83.6% 2096	100.0% 1.4% 34	100.0% 100.0% 2506
MS									
US Native	.0% 0	1.7% 1	.0% 0	16.7% 2	71.4% 10	20.0% 1	91.1% 173	50.0% 1	65.3% 188
US Naturalized	.0% 0	3.3% 2	.0% 0	16.7% 2	.0% 0	20.0% 1	.5% 1	.0% 0	2.1% 6
US Permanent Res Visa	.0% 0	18.3% 11	.0% 0	16.7% 2	7.1% 1	.0% 0	1.1% 2	.0% 0	5.6% 16
Other visa	.0% 0	76.7% 46	100.0% 5	50.0% 6	21.4% 3	60.0% 3	7.4% 14	50.0% 1	27.1% 78
Total	.0% .0% 0	100.0% 20.8% 60	100.0% 1.7% 5	100.0% 4.2% 12	100.0% 4.9% 14	100.0% 1.7% 5	100.0% 66.0% 190	100.0% .7% 2	100.0% 100.0% 288

Table F-1 (continued)

CHEMISTRY GRADUATES
by CITIZENSHIP, ETHNICITY, and DEGREE
1993 ACS Starting Salary Survey

	Race								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Citizenship									
Ph.D									
US Native	100.0% 2	6.8% 7	.0% 0	15.4% 4	50.0% 5	75.0% 3	90.5% 295	70.0% 7	65.9% 323
US Naturalized	.0% 0	1.9% 2	.0% 0	11.5% 3	.0% 0	25.0% 1	2.1% 7	.0% 0	2.7% 13
US Permanent Res Visa	.0% 0	29.1% 30	11.1% 1	23.1% 6	10.0% 1	.0% 0	3.1% 10	10.0% 1	10.0% 49
Other visa	.0% 0	62.1% 64	88.9% 8	50.0% 13	40.0% 4	.0% 0	4.3% 14	20.0% 2	21.4% 105
Total	100.0% .4% 2	100.0% 21.0% 103	100.0% 1.8% 9	100.0% 5.3% 26	100.0% 2.0% 10	100.0% .8% 4	100.0% 66.5% 326	100.0% 2.0% 10	100.0% 100.0% 490

Table F-2

CHEMISTRY GRADUATES
by CITIZENSHIP, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Citizenship									
US Native	89.9% 1283	90.8% 992	90.3% 2275	65.9% 108	64.6% 82	65.3% 190	63.8% 215	69.6% 110	65.7% 325
US Naturalized	5.2% 74	4.9% 54	5.1% 128	.6% 1	3.9% 5	2.1% 6	3.0% 10	2.5% 4	2.8% 14
US Permanent Res Visa	3.2% 45	3.0% 33	3.1% 78	3.7% 6	7.9% 10	5.5% 16	9.5% 32	11.4% 18	10.1% 50
Other visa	1.8% 25	1.3% 14	1.5% 39	29.9% 49	23.6% 30	27.1% 79	23.7% 80	16.5% 26	21.4% 106
Total	100.0% 1427	100.0% 1093	100.0% 2520	100.0% 164	100.0% 127	100.0% 291	100.0% 337	100.0% 158	100.0% 495

Table F-3

MINORITY CHEMISTRY GRADUATES
by MINORITY CLASSIFICATION, SEX, AND DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Minority Classification									
American Indian	4.8% 11	1.6% 3	3.4% 14	.0% 0	.0% 0	.0% 0	1.8% 2	.0% 0	1.2% 2
Chinese	18.3% 42	20.9% 38	19.4% 80	53.6% 30	71.4% 30	61.2% 60	65.5% 72	56.4% 31	62.4% 103
Subcont Indian	10.9% 25	11.0% 20	10.9% 45	3.6% 2	7.1% 3	5.1% 5	6.4% 7	3.6% 2	5.5% 9
Other Asian	30.4% 70	28.6% 52	29.6% 122	16.1% 9	7.1% 3	12.2% 12	12.7% 14	21.8% 12	15.8% 26
Black	11.7% 27	25.8% 47	18.0% 74	19.6% 11	7.1% 3	14.3% 14	4.5% 5	9.1% 5	6.1% 10
Hispanic	13.9% 32	6.0% 11	10.4% 43	3.6% 2	7.1% 3	5.1% 5	2.7% 3	3.6% 2	3.0% 5
Other	10.0% 23	6.0% 11	8.3% 34	3.6% 2	.0% 0	2.0% 2	6.4% 7	5.5% 3	6.1% 10
Total	100.0% 230	100.0% 182	100.0% 412	100.0% 56	100.0% 42	100.0% 98	100.0% 110	100.0% 55	100.0% 165

Table F-4

CHEMICAL ENGINEERING GRADUATES
by CITIZENSHIP, ETHNICITY, and DEGREE
1993 ACS Starting Salary Survey

	MINORITY CLASSIFICATION								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
Citizenship									
BS									
US Native	100.0% 3	37.5% 9	14.3% 1	37.9% 11	95.0% 19	70.6% 12	98.0% 630	57.1% 4	91.9% 689
US Naturalized	.0% 0	37.5% 9	57.1% 4	41.4% 12	5.0% 1	23.5% 4	1.1% 7	14.3% 1	5.1% 38
US Permanent Res Visa	.0% 0	12.5% 3	.0% 0	6.9% 2	.0% 0	5.9% 1	.6% 4	.0% 0	1.3% 10
Other visa	.0% 0	12.5% 3	28.6% 2	13.8% 4	.0% 0	.0% 0	.3% 2	28.6% 2	1.7% 13
Total	100.0% .4% 3	100.0% 3.2% 24	100.0% .9% 7	100.0% 3.9% 29	100.0% 2.7% 20	100.0% 2.3% 17	100.0% 85.7% 643	100.0% .9% 7	100.0% 100.0% 750
MS									
US Native	.0% 0	.0% 0	.0% 0	10.0% 1	.0% 0	50.0% 2	78.2% 43	.0% 0	48.9% 46
US Naturalized	.0% 0	6.7% 1	.0% 0	30.0% 3	.0% 0	.0% 0	3.6% 2	.0% 0	6.4% 6
US Permanent Res Visa	.0% 0	26.7% 4	10.0% 1	.0% 0	.0% 0	.0% 0	5.5% 3	.0% 0	8.5% 8
Other visa	.0% 0	66.7% 10	90.0% 9	60.0% 6	.0% 0	50.0% 2	12.7% 7	.0% 0	36.2% 34
Total	.0% .0% 0	100.0% 16.0% 15	100.0% 10.6% 10	100.0% 10.6% 10	.0% .0% 0	100.0% 4.3% 4	100.0% 58.5% 55	.0% .0% 0	100.0% 100.0% 94

Table F-4 (continued)

CHEMICAL ENGINEERING GRADUATES
by CITIZENSHIP, ETHNICITY, and DEGREE
1993 ACS Starting Salary Survey

	MINORITY CLASSIFICATION								Total
	Amer Indian	Chinese	Subcont Indian	Other Asian	Black	Hisp	White	Other	
PhD									
US Native	.0% 0	20.0% 1	.0% 0	.0% 0	.0% 0	50.0% 1	78.3% 36	.0% 0	53.5% 38
US Naturalized	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	2.2% 1	.0% 0	1.4% 1
US Permanent Res Visa	.0% 0	20.0% 1	.0% 0	9.1% 1	.0% 0	.0% 0	6.5% 3	.0% 0	7.0% 5
Other visa	.0% 0	60.0% 3	100.0% 6	90.9% 10	100.0% 1	50.0% 1	13.0% 6	.0% 0	38.0% 27
Total	.0% .0% 0	100.0% 7.0% 5	100.0% 8.5% 6	100.0% 15.5% 11	100.0% 1.4% 1	100.0% 2.8% 2	100.0% 64.8% 46	.0% .0% 0	100.0% 100.0% 71

Table F-5

CHEMICAL ENGINEERING GRADUATES
by CITIZENSHIP, SEX, and DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Citizenship									
US Native	91.9% 445	91.9% 249	91.9% 694	44.6% 33	65.0% 13	48.9% 46	52.3% 34	71.4% 5	54.2% 39
US Naturalized	4.8% 23	5.5% 15	5.0% 38	5.4% 4	10.0% 2	6.4% 6	1.5% 1	.0% 0	1.4% 1
US Permanent Res Visa	1.7% 8	.7% 2	1.3% 10	8.1% 6	10.0% 2	8.5% 8	7.7% 5	.0% 0	6.9% 5
Other visa	1.7% 8	1.8% 5	1.7% 13	41.9% 31	15.0% 3	36.2% 34	38.5% 25	28.6% 2	37.5% 27
Total	100.0% 484	100.0% 271	100.0% 755	100.0% 74	100.0% 20	100.0% 94	100.0% 65	100.0% 7	100.0% 72

Table F-6

MINORITY CHEMICAL ENGINEERING GRADUATES
by MINORITY CLASSIFICATION, SEX, AND DEGREE
1993 ACS Starting Salary Survey

	Bachelors			Masters			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Race									
American Indian	3.3% 2	2.1% 1	2.8% 3	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Chinese	24.6% 15	19.1% 9	22.2% 24	45.2% 14	12.5% 1	38.5% 15	21.7% 5	.0% 0	20.0% 5
Subcont Indian	8.2% 5	4.3% 2	6.5% 7	29.0% 9	12.5% 1	25.6% 10	21.7% 5	50.0% 1	24.0% 6
Other Asian	26.2% 16	29.8% 14	27.8% 30	19.4% 6	50.0% 4	25.6% 10	47.8% 11	.0% 0	44.0% 11
Black	9.8% 6	29.8% 14	18.5% 20	.0% 0	.0% 0	.0% 0	4.3% 1	.0% 0	4.0% 1
Hispanic	18.0% 11	12.8% 6	15.7% 17	6.5% 2	25.0% 2	10.3% 4	4.3% 1	50.0% 1	8.0% 2
Other	9.8% 6	2.1% 1	6.5% 7	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0	.0% 0
Total	100.0% 61	100.0% 47	100.0% 108	100.0% 31	100.0% 8	100.0% 39	100.0% 23	100.0% 2	100.0% 25

American Chemical Society

1155 SIXTEENTH STREET, N.W.
WASHINGTON, D.C. 20036
PHONE (202) 872-4534

JOHN K CRUM
Executive Director

June 28, 1993

Dear Colleague:

Every year, the American Chemical Society conducts a mail survey of persons who have recently earned degrees in chemistry or chemical engineering. Published results, which include information about salaries and employment, are useful to the profession, and especially to those beginning their careers.

I urge you, as a service to your colleagues and profession, to respond to this year's questionnaire. The procedure is *confidential*. The information you provide will be combined with returns from other graduates so that only aggregated data will be available. To ensure confidentiality, your name and address will not be coded with the information you provide.

Please complete this questionnaire and return it promptly. For your convenience, I have enclosed a self-addressed, postage-paid envelope. Results of the survey will be published in the *Chemical & Engineering News'* Career Issue this October and in a more extensive report later in the year.

Thank you for your assistance with this survey. I extend my best wishes for every success in your professional pursuits.

Sincerely,

John K Crum

Enclosure

AMERICAN CHEMICAL SOCIETY
Survey of Starting Salaries and Employment Status of 1993 Chemistry and Chemical Engineering Graduates

1. Highest degree earned:

Bachelor's ☐ 1
Master's ☐ 2
Doctorate ☐ 3 1

2. Field of highest degree:

Chemical engineering ☐ 01
Biochemical engineering ☐ 02
Biochemistry ☐ 03
General chemistry ☐ 04
Analytical chemistry ☐ 05
Inorganic chemistry ☐ 06
Organic chemistry ☐ 07
Physical chemistry ☐ 08
Polymer chemistry ☐ 09
Other chemistry ☐ 10
Other (please specify) _____ ☐ 11 2-3

3. Please describe the school that granted your degree:

a. Public ☐ 1
Private ☐ 2 4

b. Total number of students:

Less than 1,500 ☐ 1
1,500 to 4,999 ☐ 2
5,000 to 9,999 ☐ 3
10,000 to 19,999 ☐ 4
20,000 or more ☐ 5 5

c. The highest degree offered by your department is:

BS ☐ 1
MS ☐ 2
PhD ☐ 3 6

d. Location of school. Please give *first three* digits of zip code:

___ ___ ___ 7-9

e. Is the school an historically or predominantly black institution?

Yes ☐ 1
No ☐ 2 10

f. Is the school a traditionally women's institution?

Yes ☐ 1
No ☐ 2 11

IF HIGHEST DEGREE EARNED WAS A MASTER'S OR DOCTORATE, PLEASE SKIP TO QUESTION 7.

4. In your chemistry classes, did you get a chance to:

a. Work in teams?
Yes ☐ 1
No ☐ 2 12

b. Work on independent research projects?
Yes ☐ 1
No ☐ 2 13

5. Did you participate in a chemistry or chemical engineering cooperative education program while in college?

Yes ☐ 1
No ☐ 2 14

6. Grade point average: [Use A=4.00; B=3.00; C=2.00]

In your major _____ 15-18
Overall _____ 19-22

7. Will you pursue advanced studies in the fall of 1993?

Yes, full-time ☐ 1
Yes, part-time ☐ 2
No ☐ 3 23

a. If yes, field of further studies:

Chemistry ☐ 01
Other physical sci, computer science, math ☐ 02
Chemical engineering or biochemical eng ☐ 03
Other engineering ☐ 04
Biochemistry ☐ 05
Life science ☐ 06
Medicine ☐ 07
Dentistry ☐ 08
Pharmacy, pharmacology ☐ 09
Business management ☐ 10
Education ☐ 11
Law ☐ 12
Other ☐ 13 24-25

8. Your age at last birthday? _____years old 26-27

9. Your sex?

Male ☐ 1
Female ☐ 2 28

10. Citizenship or visa status:

U.S. native ☐ 1
U.S. naturalized ☐ 2
U.S. permanent resident visa ☐ 3
Other visa ☐ 4 29

11. What is your racial or ethnic group?

- American Indian or Alaskan Native ☐ 1
- Chinese ☐ 2
- Subcontinental Indian ☐ 3
- Other Asian or Pacific Islander ☐ 4
- Black (not of Hispanic origin) ☐ 5
- Hispanic ☐ 6
- White (not of Hispanic origin) ☐ 7
- Other race or ethnic group ☐ 8 30

12. Current employment status:

- Accepted or continuing full-time employment (excluding summer employment) ☐ 1
- Accepted a graduate assistantship, fellowship, or postdoctoral fellowship ☐ 2
- Part-time employment ☐ 3
- Temporary/summer employment ☐ 4
- Not employed ☐ 5 31

a. If not continuing full-time employment, are you:

- *seeking* full-time, year-round employment ☐ 1
- *not seeking* full-time, year-round employment ☐ 2 32

IF YOU CHECKED BOX 3, 4, OR 5 IN QUESTION 12, PLEASE STOP HERE AND RETURN THE QUESTIONNAIRE IN THE ENVELOPE PROVIDED.

13. Your base annual salary from principal job:

$_____per year 33-38

IF YOU HOLD AN ASSISTANTSHIP OR FELLOWSHIP, PLEASE STOP HERE AND RETURN THE QUESTIONNAIRE IN THE ENVELOPE PROVIDED.

14. How many firm offers of employment did you receive in a field of chemistry or chemical engineering?

Specify number _____ 39-41

15. Professional or technical work experience prior to graduation:

- Less than 12 months (or none) ☐ 1
- 12 to 36 months ☐ 2
- More than 36 months ☐ 3 42

16. Check the one specialty most related to your job:

- Chemical engineering ☐ 1
- Chemistry (including biochemistry) ☐ 2
- Other ☐ 3 43

17. Check the one category that best describes your employer:

- Private industry ☐ 1
- College or university ☐ 2
- High school or other school ☐ 3
- Federal government (civilian) ☐ 4
- Military ☐ 5
- State or local government ☐ 6
- Hospital or independent laboratory ☐ 7
- Other ☐ 8 44

18. If you are employed in private industry, check the one category that best describes the type of industry:

- Non-manufacturing ☐ 01
- Manufacturing company primarily involved in:
  - Aerospace ☐ 02
  - Basic chemicals ☐ 03
  - Specialty chemicals ☐ 04
  - Agricultural chemicals ☐ 05
  - Electronics ☐ 06
  - Petroleum/natural gas ☐ 07
  - Pharmaceuticals/personal care ☐ 08
  - Plastics ☐ 09
  - Other manufactures ☐ 10 45-46

19. Check the ONE work function that best describes your job:

- Teaching ☐ 1
- Management or Administration ☐ 2
- Basic research ☐ 3
- Applied research, Development, or Design ☐ 4
- Production/Quality control ☐ 5
- Other (specify) _____ ☐ 6 47

20. Is your job classified as a:

- Chemical or engineering technician ☐ 1
- Scientist or engineer ☐ 2
- Manager or administrator ☐ 3
- Other (specify) _____ ☐ 4 48

21. Employer's approximate number of employees (total for the whole organization):

- Less than 500 ☐ 1
- 500 to 2,499 ☐ 2
- 2,500 to 9,999 ☐ 3
- 10,000 to 24,999 ☐ 4
- 25,000 or more ☐ 5 49

22. Geographic location of employment: Please give *first three* digits of zip code:

___ ___ ___ 50-52

Comments:

THANK YOU FOR YOUR PARTICIPATION.
PLEASE RETURN THIS QUESTIONNAIRE TO:

American Chemical Society
Room 440 Othmer Bldg.
1155 16th Street, NW
Washington, DC 20036

ACS CAREER PUBLICATIONS FOR SALE

Salaries: The Society annually surveys the ACS membership, gathering detailed information on member chemists and chemical engineers. The reports based on this survey contain statistical tables describing the respondents' employment status, employer, work function and specialty, salaries, and demographic characteristics. Reports are available for each year from 1973 through the current year. For 1987, four separate reports are available: 1987 Salaries of Non-Academic Chemists, 1987 Salaries of Non-Academic Chemical Engineers, 1987 Salaries of Academic Chemists, and 1987 Employment Status and Demographic Characteristics of ACS Members.

Starting Salaries: ACS also surveys new graduates in chemistry and chemical engineering each year,and publishes reports detailing the graduates' employment status, post-graduation plans, starting salaries and other employment and demographic characteristics. Reports are available for each year from 1975.

Women Chemists: Every five years, the Society produces a supplemental report on the economic status of women in the ACS. Reports are available for 1975, 1980, 1985, and 1990.

For prices and ordering information, please call or write:

Distribution Office
American Chemical Society
1155 16th Street, NW
Washington, DC 20036

Toll Free No.: (800) 227-5558

OTHER CAREER SERVICES PUBLICATIONS

Workforce Reports: Workforce Reports, which are published three times a year, provide analyses of work force issues. Each issue is devoted to a single topic, for example BS chemists or women chemists. Reports are available from September 1990 through the present.

Office of Professional Services Bulletin - Reports current data on degrees and employment.

Coping with Job Loss describes the trauma of termination and provides information on coping with the emotional, practical, and professional aftermath. Examines the grieving process, reviews sources of help and support, makes recommendations on organizing a job search.

Professional Employment Guidelines (PEG) addresses, for both employer and employee, good employment practices as the basis of sound professional relations. Topics include: terms of employment; employer environment; professional development; termination conditions; definition of multiple terminations; investigation of unprofessional conduct; patent rights for inventors; continuing education; and pension privileges.

Academic Professional Guidelines are extensions of the broader ACS Professional Employment Guidelines (PEG). Outlining reasonable and ethical professional conduct for faculty, students, associates, and administrators, the Guidelines are intended to enhance the relationships between these constituencies; and, to provide assistance on special issues that are of concern to chemical scientists in the academic environment.

What a PhD Chemist Should Consider Before Accepting a Position - Discusses important issues any individuals should consider before accepting a new position:compensation, benefits, and career growth to name a few. Also available for BS chemists.

ACS Career, Employment and Professional Resources: A Catalog of Publications, Programs & Services - This brochure lists all ACS career resources for high school and college students exploring career options; professionals seeking employment in chemistry and allied fields; and individuals facing the challenges of career development, career changes, and retirement.

CHEMJOBS USA - a weekly bulletin that contains classified ads from up to 20 newspapers and publications throughout the U.S. the ads are abstracted into an easy-to-read format. A three-month subscription to this publication costs only $40.

C&EN Situations Wanted Ads - Employed ACS members and student affiliates may place an ad with Centcom, ACS's advertising agency, at 90 cents per word per insertion, no minimum charge. Unemployed ACS members, student affiliates, and retired members may place free situations wanted ads; certain restrictions apply.

Employer Mailing List - A mailing list used to solicit employers for ACS employment services; it is arranged by state, and can be purchased for a small fee. Use of this mailing list is restricted to personal use only.

For information, please call or write:

Office of Professional Services
American Chemical Society
1155 16th Street, NW
Washington, DC 20036
Toll Free No.: (800) 227-5558

American Chemical Society
Washington, D.C.

ISBN 0--8412--28507