1978 SURVEY REPORT

STARTING SALARIES AND EMPLOYMENT STATUS OF CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES

Office of Manpower Studies
American Chemical Society
Washington, D.C.

H I G H L I G H T S

- Chemists' starting salaries rose at all degree levels but failed to keep pace with prices (which rose 7.9%, according to the official consumer price index). Median starting salaries were:

  $12,700 for the BS : up 5.8%; in constant dollars, -1.9%
  $15,000 for the MS : up 6.4%; in constant dollars, -1.4%
  $21,000 for the PhD : up 7.7%; in constant dollars, -0.2%

- Chemical engineers' starting salaries rose at all degree levels, but only the BS salaries kept up with prices. Median starting salaries were:

  $18,200 for the BS : up 8.3%; in constant dollars, +0.4%
  $19,200 for the MS : up 6.7%; in constant dollars, -1.1%
  $23,100 for the PhD : up 4.1%; in constant dollars, -3.6%

- Postdoctoral fellowships went to 33% of PhD chemistry graduates--last year the figure was 43%.

- Full-time employment among BS chemistry graduates increased to 34%, from 30% in 1977.

- Medicine and chemistry are the most popular subjects among BS graduates planning full-time study this fall. Among graduates who completed chemistry majors approved by the ACS Committee on Professional Training, 49% have entered graduate school in chemistry. Among graduates whose undergraduate training has not been certified as having met ACS standards, 50% have entered medical school.

- A striking uniformity characterizes chemical engineers' starting salaries. For both bachelor's and master's degree chemical engineers entering private industry the standard deviation of starting salary was only about 0.06 times the mean; in chemistry the comparable figure was 0.17.

- Women's salaries appear to have acheived parity with men's. For example, in private industry the ratio of women's median salaries to men's was 1.06 for BS chemists and 1.01 for BS chemical engineers.

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This report was prepared by the
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American Chemical Society
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DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

ACKNOWLEDGEMENTS

Chemistry and chemical engineering graduates are surveyed each year by the Office of Manpower Studies, Department of Professional Relations and Manpower Studies, American Chemical Society. The purpose of this survey, carried out under the aegis of the Society's Committee on Economic Status, is to observe trends in starting salaries and employment status.

A commentary on behalf of the Committee has been prepared by a Committee member, Dr. Alan L. McClelland of E. I. du Pont de Nemours, Inc. It appears in this report as the Summary of findings. Mr. J. Robert Jones, Manager of the ACS Office of Manpower Studies and Ms. Joanna K. Chin, Program Assistant, conducted the survey, edited the returns, and assembled the report. Mr. Daryl S. Watson of Chemical Abstracts Service did the computer porgramming and Ms. Chin typed the manuscript.

Robert K. Neuman, Head
Department of Professional
Relations and Manpower Studies

SUMMARY OF FINDINGS

Information on the employment status of new chemistry graduates from the annual ACS Starting Salary Survey provides encouraging indications that the job situation is coming into better balance. For example, 33% of new Ph.D.'s accepted postdoctoral positions immediately on graduation compared to 43% last year and 49% the year before. At this year's level, the majority are probably taking postdoctoral positions because they truly desire the additional academic experience rather than because of the lack of suitable permanent positions. At the B.S. level the news is also good: 25% found jobs in chemistry, compared to 22% in 1977 and 20% in 1976.

Chemical engineers continued the traditional pattern of a high level of entry into technical jobs at the B.S. level, 69% this year, 72% last year. The percentage unable to find full-time employment rose to 4.9% from 2.6%. Whether this reflects the beginning of a trend resulting from increasing numbers of graduating chemical engineers remains to be seen in future years.

Further breakdown of the post-graduation status of new graduates is given in Table 1.

While starting salaries increased at all degree levels for chemists and chemical engineers, the 7.9% increase in the BLS consumer price index from August 1977 to August 1978 shows that inflation more than wiped out the gains for most groups. The most straight-forward salary comparison is for inexperienced new employees going into industry. (See table below.) In this category B.S. chemical engineers had

STARTING MEDIAN YEARLY SALARIES
Of Inexperienced Chemists and Chemical Engineers in Industry
by Degree: Summer of 1977 and Summer 1978

Degree Level	1977	1978	Percent Increase
Chemists			
Bachelor's	$12,600	13,500	7.1
Master's	15,200	15,600	2.6
Ph.D.	20,000	21,500	7.5
Chemical Engineers			
Bachelor's	16,800	18,300	8.9
Master's	18,000	19,200	6.7
Ph.D.	22,500	23,700	5.3

TABLE 1

POSTGRADUATION STATUS OF CHEMISTRY AND CHEMICAL ENGINEERING GRADUATE
Summer of 1977 and Summer of 1978

Major and Employment Status	DEGREE LEVEL					
	Bachelor's		Master's		Ph.D.	
	1977	1978	1977	1978	1977	1978
CHEMISTRY						
Full-time employed:						
In chemistry or chemical engineering	22.3%	25.0%	45.1%	43.4%	50.5%	60.3%
Outside chemistry or chemical engineering	7.9	9.4	3.2	7.2	3.1	2.9
Postdoctoral/grad. asst./other fellowship	29.9	29.1	37.1	37.1	42.7	32.8
Military/peace Corps, etc.	1.4	1.8	0.5	1.3	0.6	0.5
Unable to obtain full-time employment	7.5	8.0	4.5	4.7	2.3	2.7
(and planning further studies)	(2.3)	(2.0)	(0.8)	(1.2)	(0.2)	(0.0)
(not planning further studies)	(5.0)	(5.9)	(3.7)	(3.5)	(2.1)	(2.7)
Not seeking full-time employment	31.0	26.7	9.5	6.3	0.8	0.7
(and planning further studies)	(29.0)	(25.7)	(7.2)	(4.7)	(0.0)	(0.7)
(not planning further studies)	(2.0)	(1.0)	(2.4)	(1.3)	(0.8)	(0.0)
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of responses	2,345	2,690	377	318	487	408
CHEMICAL ENGINEERING						
Full-time employed:						
In chemistry or chemical engineering	72.1%	68.8%	72.2%	73.1%	83.9%	89.2%
Outside chemistry or chemical engineering	4.4	6.0	0.9	3.0	5.7	4.6
Postdoctoral/grad. asst./other fellowship	15.6	15.3	20.2	15.6	9.2	6.2
Military/Peace Corps, etc.	0.7	0.6	1.8	1.2	0.0	0.0
Unable to obtain full-time employment	2.6	4.9	1.3	2.4	1.1	0.0
(and planning further studies)	(0.4)	(0.8)	(0.4)	(1.8)	(0.0)	(0.0)
(not planning further studies)	(2.2)	(3.8)	(0.9)	(0.6)	(1.1)	(0.0)
Not seeking full-time employment	4.5	4.4	3.6	4.8	0.0	0.0
(and planning further studies)	(4.2)	(4.1)	(3.6)	(2.4)	(0.0)	(0.0)
(not planning further studies)	(0.3)	(0.2)	(0.0)	(2.4)	(0.0)	(0.0)
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of responses	1,082	1,049	223	167	87	65

Note: For categories "unable to obtain full-time employment" and "not seeking full-time employment," a further breakdown is given: "planning further studies" and "not planning further studies." Please note that detail may not add up to total because of no responses to second question.

an increase over last year in median starting salary of 8.9% but M.S. (6.7%) and Ph.D. (5.3%) chemical engineers, and B.S. (7.1%), M.S. (2.6%) and Ph.D. (7.5%) chemists lost ground to inflation.

Detailed distributions of starting salary figures for chemists and chemical engineers are given in Tables 2 and 3.

One interesting item stands out in the salary figures. At the B.S. level for both chemists and chemical engineers going to industrial jobs, the median starting salaries were higher for women than men (chemists, $14,000 vs. $13,200; chemical engineers, $18,300 vs. $18,200). The pattern is not significantly different at other degree levels, because the numbers of women are too small to give statistically meaningful figures. All the results, however, strongly suggest there is no salary discrimination against women in industrial starting salaries.

Continuing education plans for chemistry and chemical engineering B.S. graduates are detailed in Tables 4 and 5. Differences in such plans for the two groups continue to be evident. A high proportion (58%) of the chemists plan to go to full-time further study, while only 20 percent of the chemical engineers will do so. The chemists continuing full-time split nearly equally between medicine/dentistry and chemistry, while the great bulk of full-time continuing engineers will stay in chemical engineering. Nearly half of the engineers will continue part-time study, with the majority choosing business studies. Business studies attract only a small number of chemists on either a full- or part-time basis.

Alan L. McClelland, Chairman
Subcommittee on the Annual Report
and Surveys

Table 2

STARTING YEARLY SALARIES OF INEXPERIENCED FULL-TIME EMPLOYED CHEMISTRY GRADUATES

by Degree: Summer of 1977 and Summer of 1978

Salaries	DEGREE LEVEL					
	Bachelor's		Master's		Ph.D.	
	1977	1978	1977	1978	1977	1978
90th Percentile	$14,640	$15,660	$17,600	$18,300	$21,600	$23,500
75th Percentile	13,500	14,595	16,000	16,600	20,700	22,200
50th Percentile	12,000	12,700	14,100	15,000	19,500	21,000
25th Percentile	10,000	10,600	11,500	12,000	16,800	18,000
10th Percentile	8,400	9,360	9,722	10,000	12,000	12,000
Mean	11,670	12,651	13,812	14,560	18,163	19,345
Count	398	517	106	76	173	158
Std. Dev.	2,363	2,574	3,029	3,149	3,596	4,335

Table 3

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

by Degree: Summer of 1977 and Summer of 1978

Salaries	D E G R E E L E V E L					
	Bachelor's		Master's		Ph.D.	
	1977	1978	1977	1978	1977	1978
90th Percentile	$17,400	$18,900	$19,000	$21,000	$24,000	$25,800
75th Percentile	17,100	18,600	18,300	20,000	23,000	24,960
50th Percentile	16,800	18,200	18,000	19,200	22,200	23,100
25th Percentile	16,200	17,800	17,100	18,500	21,500	20,000
10th Percentile	15,300	16,800	15,500	17,500	17,000	17,000
Mean	16,563	18,023	17,552	19,228	21,764	22,127
Count	664	589	91	78	40	38
Std. Dev.	1,167	1,165	1,090	1,249	2,420	3,727

TABLE 4

PLANS FOR ADVANCED FURTHER STUDIES OF B.S. CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES: Fall 1978

	Chemists	Chemical Engineers
Plan further studies	73.7%	45.3%
Full-time	(58.3)	(20.0)
Part-time	(15.4)	(25.3)
Have no plans or no response	26.3	54.7
Total	100.0	100.0
Number of responses	2,692	1,049

TABLE 5

FIELD OF ADVANCED FURTHER STUDIES OF B.S. CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES WHO PLAN FURTHER STUDIES: Fall 1978

Field of Study	Chemists	Chemical Engineers
Full-time		
Chemistry or Biochemistry	38.1%	2.9%
Chemical Engineering	2.7	70.0
Medicine or Dentistry	43.7	11.4
Business or Management	2.6	7.6
All Others	12.9	8.1
Total	100.0	100.0
Number of responses	1,569	210
Part-time		
Chemistry or Biochemistry	51.2%	1.9%
Chemical Engineering	6.5	29.0
Business or Management	16.9	55.1
All Others	25.4	14.0
Total	100.0	100.0
Number of responses	414	265

TABLE A-1

POSTGRADUATION STATUS OF CHEMISTS

BY HIGHEST DEGREE EARNED AND SEX

EMPLOYMENT STATUS		BACHLORS MEN	BACHLORS WOMEN	ROW TOTAL	MASTERS MEN	MASTERS WOMEN	ROW TOTAL	PHD MEN	PHD WOMEN	ROW TOTAL
FULLTIME IN CHEM	#	425	247	672	104	34	138	208	38	246
	%	22.2	32.0	25.0	43.9	42.0	43.4	59.6	64.4	60.3
FULLTIME NONCHEM		185	68	253	17	6	23	10	2	12
		9.7	8.8	9.4	7.2	7.4	7.2	2.9	3.4	2.9
POSTDOC,GRADASST		589	194	783	92	26	118	118	16	134
		30.7	25.1	29.1	38.8	32.1	37.1	33.8	27.1	32.8
MILITARY,VISTA		43	5	48	4	0	4	2	0	2
		2.2	0.6	1.8	1.7	0.0	1.3	0.6	0.0	0.5
SEEKING EMPLOYMT		145	71	216	9	6	15	9	2	11
		7.6	9.2	8.0	3.8	7.4	4.7	2.6	3.4	2.7
NOT SEEKING EMPL		530	188	718	11	9	20	2	1	3
		27.6	24.3	26.7	4.6	11.1	6.3	0.6	1.7	0.7
COLUMN TOTAL		1917	773	2690	237	81	318	349	59	408
		71.3	28.7	100.0	74.5	25.5	100.0	85.5	14.5	100.0

PLANS FOR FURTHER STUDIES THIS FALL

FULL-TIME	#	1193	376	1569	111	30	141	18	4	22
	%	62.2	48.6	58.3	46.8	37.0	44.3	5.1	6.8	5.4
PART-TIME		265	149	414	38	7	45	21	3	24
		13.8	19.3	15.4	16.0	8.6	14.2	6.0	5.1	5.9
NO PLANS		451	245	696	87	42	129	305	51	356
		23.5	31.7	25.9	36.7	51.9	40.6	87.1	86.4	87.0
NO RESPONSE		10	3	13	1	2	3	6	1	7
		0.5	0.4	0.5	0.4	2.5	0.9	1.7	1.7	1.7
COLUMN TOTAL		1919	773	2692	237	81	318	350	59	409
		71.3	28.7	100.0	74.5	25.5	100.0	85.6	14.4	100.0

TABLE A-2

PLANS FOR FURTHER STUDIES

OF UNEMPLOYED CHEMISTS

BY HIGHEST DEGREE EARNED AND SEX

PLANS FOR FURTHER STUDIES THIS FALL		NOT SEEKING EMPLYMNT			SEEKING EMPLOYMT		
		MEN	WOMEN	ROW TOTAL	MEN	WOMEN	ROW TOTAL
BACHLORS							
FULL-TIME	#	505	169	674	7	4	11
	%	95.3	89.9	93.9	4.8	5.6	5.1
PART-TIME		11	7	18	32	12	44
		2.1	3.7	2.5	22.1	16.9	20.4
NO PLANS		14	12	26	104	55	159
		2.6	6.4	3.6	71.7	77.5	73.6
NO RESPONSE		0	0	0	2	0	2
		0.0	0.0	0.0	1.4	0.0	0.9
COLUMN TOTAL		530	188	718	145	71	216
		73.8	26.2	100.0	67.1	32.9	100.0
MASTERS							
FULL-TIME	#	11	4	15	0	0	0
	%	100.0	44.4	75.0	0.0	0.0	0.0
PART-TIME		0	0	0	3	1	4
		0.0	0.0	0.0	33.3	16.7	26.7
NO PLANS		0	4	4	6	5	11
		0.0	44.4	20.0	66.7	83.3	73.3
NO RESPONSE		0	1	1	0	0	0
		0.0	11.1	5.0	0.0	0.0	0.0
COLUMN TOTAL		11	9	20	9	6	15
		55.0	45.0	100.0	60.0	40.0	100.0
PHD							
FULL-TIME	#	2	1	3	0	0	0
	%	100.0	100.0	100.0	0.0	0.0	0.0
NO PLANS		0	0	0	9	2	11
		0.0	0.0	0.0	100.0	100.0	100.0
COLUMN TOTAL		2	1	3	9	2	11
		66.7	33.3	100.0	81.8	18.2	100.0

TABLE A-3

POSTGRADUATION STATUS OF CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND SEX

EMPLOYMENT STATUS		BACHLORS MEN	BACHLORS WOMEN	BACHLORS ROW TOTAL	MASTERS MEN	MASTERS WOMEN	MASTERS ROW TOTAL	PHD MEN	PHD WOMEN	PHD ROW TOTAL
FULLTIME IN CHEM	#	584	138	722	111	11	122	57	1	58
	%	66.7	79.3	68.8	73.0	73.3	73.1	89.1	100.0	89.2
FULLTIME NONCHEM		55	8	63	5	0	5	3	0	3
		6.3	4.6	6.0	3.3	0.0	3.0	4.7	0.0	4.6
POSTDOC,GRADASST		143	18	161	26	0	26	4	0	4
		16.3	10.3	15.3	17.1	0.0	15.6	6.3	0.0	6.2
MILITARY,VISTA		6	0	6	2	0	2	0	0	0
		0.7	0.0	0.6	1.3	0.0	1.2	0.0	0.0	0.0
SEEKING EMPLOYMT		46	5	51	3	1	4	0	0	0
		5.3	2.9	4.9	2.0	6.7	2.4	0.0	0.0	0.0
NOT SEEKING EMPL		41	5	46	5	3	8	0	0	0
		4.7	2.9	4.4	3.3	20.0	4.8	0.0	0.0	0.0
COLUMN TOTAL		875	174	1049	152	15	167	64	1	65
		83.4	16.6	100.0	91.0	9.0	100.0	98.5	1.5	100.0

PLANS FOR FURTHER STUDIES THIS FALL

FULL-TIME	#	190	20	210	31	2	33	0	0	0
	%	21.7	11.5	20.0	20.4	13.3	19.8	0.0	0.0	0.0
PART-TIME		223	42	265	23	2	25	1	0	1
		25.5	24.1	25.3	15.1	13.3	15.0	1.6	0.0	1.5
NO PLANS		452	110	562	96	11	107	62	1	63
		51.7	63.2	53.6	63.2	73.3	64.1	96.9	100.0	96.9
NO RESPONSE		10	2	12	2	0	2	1	0	1
		1.1	1.1	1.1	1.3	0.0	1.2	1.6	0.0	1.5
COLUMN TOTAL		875	174	1049	152	15	167	64	1	65
		83.4	16.6	100.0	91.0	9.0	100.0	98.5	1.5	100.0

TABLE A-4

PLANS FOR FURTHER STUDIES

OF UNEMPLOYED CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED

PLANS FOR FURTHER STUDIES THIS FALL		NOT SEEKING EMPLYMNT MEN	NOT SEEKING EMPLYMNT WOMEN	NOT SEEKING EMPLYMNT ROW TOTAL	SEEKING EMPLOYMT MEN	SEEKING EMPLOYMT WOMEN	SEEKING EMPLOYMT ROW TOTAL
BACHLORS							
FULL-TIME	#	38	3	41	4	0	4
	%	92.7	60.0	89.1	8.7	0.0	7.8
PART-TIME		2	0	2	3	1	4
		4.9	0.0	4.3	6.5	20.0	7.8
NO PLANS		1	1	2	36	4	40
		2.4	20.0	4.3	78.3	80.0	78.4
NO RESPONSE		0	1	1	3	0	3
		0.0	20.0	2.2	6.5	0.0	5.9
COLUMN TOTAL		41	5	46	46	5	51
		89.1	10.9	100.0	90.2	9.8	100.0
MASTERS							
FULL-TIME	#	4	0	4	1	1	2
	%	80.0	0.0	50.0	33.3	100.0	50.0
PART-TIME		0	0	0	1	0	1
		0.0	0.0	0.0	33.3	0.0	25.0
NO PLANS		1	3	4	1	0	1
		20.0	100.0	50.0	33.3	0.0	25.0
COLUMN TOTAL		5	3	8	3	1	4
		62.5	37.5	100.0	75.0	25.0	100.0

TABLE A-5

POSTGRADUATION STATUS OF CHEMISTS

BY HIGHEST DEGREE EARNED AND CITIZENSHIP

EMPLOYMENT STATUS		BACHLORS U.S. CITIZEN	BACHLORS RESIDENT VISA	BACHLORS OTHER VISA	BACHLORS ROW TOTAL	MASTERS U.S. CITIZEN	MASTERS RESIDENT VISA	MASTERS OTHER VISA	MASTERS ROW TOTAL	PHD U.S. CITIZEN	PHD RESIDENT VISA	PHD OTHER VISA	PHD ROW TOTAL
FULLTIME IN CHEM	#	664	7	0	671	125	7	6	138	223	14	8	245
	%	25.2	21.9	0.0	25.0	44.8	58.3	22.2	43.4	62.5	63.6	29.6	60.3
FULLTIME NONCHEM	#	249	3	1	253	22	1	0	23	9	0	3	12
	%	9.5	9.4	4.8	9.4	7.9	8.3	0.0	7.2	2.5	0.0	11.1	3.0
POSTDOC,GRADASST	#	762	8	11	781	99	3	16	118	109	8	16	133
	%	29.0	25.0	52.4	29.1	35.5	25.0	59.3	37.1	30.5	36.4	59.3	32.8
MILITARY,VISTA	#	47	1	0	48	4	0	0	4	2	0	0	2
	%	1.8	3.1	0.0	1.8	1.4	0.0	0.0	1.3	0.6	0.0	0.0	0.5
SEEKING EMPLOYMT	#	203	7	4	214	11	0	4	15	11	0	0	11
	%	7.7	21.9	19.0	8.0	3.9	0.0	14.8	4.7	3.1	0.0	0.0	2.7
NOT SEEKING EMPL	#	707	6	5	718	18	1	1	20	3	0	0	3
	%	26.9	18.8	23.8	26.7	6.5	8.3	3.7	6.3	0.8	0.0	0.0	0.7
COLUMN TOTAL		2632	32	21	2685	279	12	27	318	357	22	27	406
		98.0	1.2	0.8	100.0	87.7	3.8	8.5	100.0	87.9	5.4	6.7	100.0

PLANS FOR FURTHER STUDIES THIS FALL

FULL-TIME	#	1532	17	17	1566	120	5	16	141	19	0	3	22
	%	58.2	51.5	81.0	58.3	43.0	41.7	59.3	44.3	5.3	0.0	11.1	5.4
PART-TIME	#	407	5	2	414	39	2	4	45	23	0	1	24
	%	15.5	15.2	9.5	15.4	14.0	16.7	14.8	14.2	6.4	0.0	3.7	5.9
NO PLANS	#	681	11	2	694	118	5	6	129	313	21	21	355
	%	25.9	33.3	9.5	25.8	42.3	41.7	22.2	40.6	87.4	95.5	77.8	87.2
NO RESPONSE	#	13	0	0	13	2	0	1	3	3	1	2	6
	%	0.5	0.0	0.0	0.5	0.7	0.0	3.7	0.9	0.8	4.5	7.4	1.5
COLUMN TOTAL		2633	33	21	2687	279	12	27	318	358	22	27	407
		98.0	1.2	0.8	100.0	87.7	3.8	8.5	100.0	88.0	5.4	6.6	100.0

TABLE A-6

POSTGRADUATION STATUS OF CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND CITIZENSHIP

EMPLOYMENT STATUS		BACHLORS U. S. CITIZEN	BACHLORS RESIDENT VISA	BACHLORS OTHER VISA	BACHLORS ROW TOTAL	MASTERS U. S. CITIZEN	MASTERS RESIDENT VISA	MASTERS OTHER VISA	MASTERS ROW TOTAL	PHD U. S. CITIZEN	PHD RESIDENT VISA	PHD OTHER VISA	PHD ROW TOTAL
FULLTIME IN CHEM	#	707	13	2	722	106	9	6	121	44	8	6	58
	%	69.5	76.5	13.3	68.8	79.1	90.0	27.3	72.9	95.7	80.0	66.7	89.2
FULLTIME NONCHEM	#	63	0	0	63	4	1	0	5	1	2	0	3
	%	6.2	0.0	0.0	6.0	3.0	10.0	0.0	3.0	2.2	20.0	0.0	4.6
POSTDOC,GRADASST	#	150	1	10	161	16	0	10	26	1	0	3	4
	%	14.7	5.9	66.7	15.3	11.9	0.0	45.5	15.7	2.2	0.0	33.3	6.2
MILITARY,VISTA	#	6	0	0	6	2	0	0	2	0	0	0	0
	%	0.6	0.0	0.0	0.6	1.5	0.0	0.0	1.2	0.0	0.0	0.0	0.0
SEEKING EMPLOYMT	#	47	2	2	51	1	0	3	4	0	0	0	0
	%	4.6	11.8	13.3	4.9	0.7	0.0	13.6	2.4	0.0	0.0	0.0	0.0
NOT SEEKING EMPL	#	44	1	1	46	5	0	3	8	0	0	0	0
	%	4.3	5.9	6.7	4.4	3.7	0.0	13.6	4.8	0.0	0.0	0.0	0.0
COLUMN TOTAL		1017	17	15	1049	134	10	22	166	46	10	9	65
		96.9	1.6	1.4	100.0	80.7	6.0	13.3	100.0	70.8	15.4	13.8	100.0

PLANS FOR FURTHER STUDIES THIS FALL

FULL-TIME	#	197	1	12	210	21	0	12	33	0	0	0	0
	%	19.4	5.9	80.0	20.0	15.7	0.0	54.5	19.9	0.0	0.0	0.0	0.0
PART-TIME	#	256	8	1	265	20	3	1	24	1	0	0	1
	%	25.2	47.1	6.7	25.3	14.9	30.0	4.5	14.5	2.2	0.0	0.0	1.5
NO PLANS	#	552	8	2	562	91	7	9	107	44	10	9	63
	%	54.3	47.1	13.3	53.6	67.9	70.0	40.9	64.5	95.7	100.0	100.0	96.9
NO RESPONSE	#	12	0	0	12	2	0	0	2	1	0	0	1
	%	1.2	0.0	0.0	1.1	1.5	0.0	0.0	1.2	2.2	0.0	0.0	1.5
COLUMN TOTAL		1017	17	15	1049	134	10	22	166	46	10	9	65
		96.9	1.6	1.4	100.0	80.7	6.0	13.3	100.0	70.8	15.4	13.8	100.0

TABLE A-7

POSTGRADUATION STATUS

OF MINORITY CHEMISTS

BY HIGHEST DEGREE EARNED

EMPLOYMENT STATUS		BACHLORS	MASTERS	PHD	RCW TOTAL
FULLTIME IN CHEM	#	32	19	32	83
	%	19.9	48.7	60.4	32.8
FULLTIME NONCHEM		26	2	1	29
		16.1	5.1	1.9	11.5
POSTDOC,GRADASST		35	11	19	65
		21.7	28.2	35.8	25.7
MILITARY,VISTA		3	0	0	3
		1.9	0.0	0.0	1.2
SEEKING EMPLOYMT		22	5	1	28
		13.7	12.8	1.9	11.1
NOT SEEKING EMPL		43	2	0	45
		26.7	5.1	0.0	17.8
COLUMN TOTAL		161	39	53	253
		63.6	15.4	20.9	100.0

PLANS FOR FURTHER STUDIES THIS FALL

FULL-TIME	#	85	15	3	103
	%	52.8	38.5	5.7	40.7
PART-TIME		30	7	4	41
		18.6	17.9	7.5	16.2
NO PLANS		46	17	44	107
		28.6	43.6	83.0	42.3
NO RESPONSE		0	0	2	2
		0.0	0.0	3.8	0.8
COLUMN TOTAL		161	39	53	253
		63.6	15.4	20.9	100.0

TABLE A-8

POSTGRADUATION STATUS
OF MINORITY CHEMICAL ENGINEERS
BY HIGHEST DEGREE EARNED

EMPLOYMENT STATUS		BACHLORS	MASTERS	PHD	ROW TOTAL
FULLTIME IN CHEM	#	38	15	9	62
	%	58.5	62.5	90.0	62.6
FULLTIME NONCHEM		2	0	1	3
		3.1	0.0	10.0	3.0
POSTDOC,GRADASST		18	6	0	24
		27.7	25.0	0.0	24.2
SEEKING EMPLOYMT		4	2	0	6
		6.2	8.3	0.0	6.1
NOT SEEKING EMPL		3	1	0	4
		4.6	4.2	0.0	4.0
COLUMN TOTAL		65	24	10	99
		65.7	24.2	10.1	100.0

PLANS FOR FURTHER STUDIES THIS FALL

FULL-TIME	#	19	7	0	26
	%	29.2	29.2	0.0	26.3
PART-TIME		15	3	0	18
		23.1	12.5	0.0	18.2
NO PLANS		31	14	9	54
		47.7	58.3	90.0	54.5
NO RESPONSE		0	0	1	1
		0.0	0.0	10.0	1.0
COLUMN TOTAL		65	24	10	99
		65.7	24.2	10.1	100.0

TABLE A-9

POSTGRADUATION STATUS OF B.S. CHEMISTS

BY CERTIFICATION STATUS

EMPLOYMENT STATUS		CERTIFD.[1]	NON-CERTIFD.	ROW TOTAL
FULLTIME IN CHEM	#	378	294	672
	%	28.5	21.5	25.0
FULLTIME NONCHEM		85	168	253
		6.4	12.3	9.4
POSTDOC,GRADASST		502	282	784
		37.9	20.6	29.1
MILITARY,VISTA		27	21	48
		2.0	1.5	1.8
SEEKING EMPLOYMT		95	121	216
		7.2	8.9	8.0
NOT SEEKING EMPL		239	480	719
		18.0	35.1	26.7
COLUMN TOTAL		1326	1366	2692
		49.3	50.7	100.0

PLANS FOR FURTHER STUDIES THIS FALL

FULL-TIME	#	753	818	1571
	%	56.7	59.8	58.3
PART-TIME		216	198	414
		16.3	14.5	15.4
NO PLANS		353	343	696
		26.6	25.1	25.8
NO RESPONSE		5	8	13
		0.4	0.6	0.5
COLUMN TOTAL		1327	1367	2694
		49.3	50.7	100.0

[1] A "certified bachelor" is one who has been certified by the chemistry department chairman to the American Chemical Society, as having successfully completed the curriculum in chemistry as approved by the ACS Committee on Professional Training, and is, therefore, eligible to become a member of ACS.

TABLE A-10

POSTGRADUATION STATUS OF M.S. AND PH.D. CHEMISTS

BY FIELD OF HIGHEST DEGREE

EMPLOYMENT STATUS		FIELD OF HIGHEST DEGREE: CHEMSTRY, GENERAL	BIOCHEMISTRY	ANALYTICAL	INORGANIC	ORGANIC	PHARMA, MED, CLN	PHYSICAL, THEORET	POLYMER, MACROMOL	CHEMSTRY, OTHER	ROW TOTAL
MASTERS											
FULLTIME IN CHEM	#	29	9	20	7	48	1	9	6	9	138
	%	50.9	39.1	57.1	33.3	51.6	50.0	17.3	75.0	33.3	43.4
FULLTIME NONCHEM		7	1	2	3	3	0	4	1	2	23
		12.3	4.3	5.7	14.3	3.2	0.0	7.7	12.5	7.4	7.2
POSTDOC,GRADASST		15	9	10	8	31	1	34	1	9	118
		26.3	39.1	28.6	38.1	33.3	50.0	65.4	12.5	33.3	37.1
MILITARY,VISTA		0	0	0	0	0	0	4	0	0	4
		0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	1.3
SEEKING EMPLOYMT		0	0	1	3	5	0	1	0	5	15
		0.0	0.0	2.9	14.3	5.4	0.0	1.9	0.0	18.5	4.7
NOT SEEKING EMPL		6	4	2	0	6	0	0	0	2	20
		10.5	17.4	5.7	0.0	6.5	0.0	0.0	0.0	7.4	6.3
COLUMN TOTAL		57	23	35	21	93	2	52	8	27	318
		17.9	7.2	11.0	6.6	29.2	0.6	16.4	2.5	8.5	100.0
PHD											
FULLTIME IN CHEM	#	2	13	50	39	82	3	41	6	10	246
	%	22.2	44.8	82.0	62.9	59.4	75.0	50.6	85.7	58.8	60.3
FULLTIME NONCHEM		0	2	0	0	2	0	7	0	1	12
		0.0	6.9	0.0	0.0	1.4	0.0	8.6	0.0	5.9	2.9
POSTDOC,GRADASST		7	14	9	20	47	1	29	1	6	134
		77.8	48.3	14.8	32.3	34.1	25.0	35.8	14.3	35.3	32.8
MILITARY,VISTA		0	0	0	0	1	0	1	0	0	2
		0.0	0.0	0.0	0.0	0.7	0.0	1.2	0.0	0.0	0.5
SEEKING EMPLOYMT		0	0	2	2	4	0	3	0	0	11
		0.0	0.0	3.3	3.2	2.9	0.0	3.7	0.0	0.0	2.7
NOT SEEKING EMPL		0	0	0	1	2	0	0	0	0	3
		0.0	0.0	0.0	1.6	1.4	0.0	0.0	0.0	0.0	0.7
COLUMN TOTAL		9	29	61	62	138	4	81	7	17	408
		2.2	7.1	15.0	15.2	33.8	1.0	19.9	1.7	4.2	100.0

TABLE A-11

FIELD OF ADVANCED FURTHER STUDIES OF CHEMISTS

WHO PLAN FURTHER STUDIES (FULL-TIME OR PART-TIME) IN FALL, 1978

BY HIGHEST DEGREE EARNED AND SEX

FIELD OF ADVANCED FURTHER STUDIES		BACHLORS MEN	BACHLORS WOMEN	BACHLORS ROW TOTAL	MASTERS MEN	MASTERS WOMEN	MASTERS ROW TOTAL	PHD MEN	PHD WOMEN	PHD ROW TOTAL
CHEMISTRY	#	506	167	673	101	24	125	16	2	18
	%	34.7	31.8	33.9	67.8	64.9	67.2	41.0	28.6	39.1
OTH PHY SCI,MATH		43	21	64	2	0	2	6	0	6
		2.9	4.0	3.2	1.3	0.0	1.1	15.4	0.0	13.0
CHEMICAL ENGRING		45	24	69	5	0	5	2	0	2
		3.1	4.6	3.5	3.4	0.0	2.7	5.1	0.0	4.3
OTHER ENGRING		25	8	33	2	0	2	0	0	0
		1.7	1.5	1.7	1.3	0.0	1.1	0.0	0.0	0.0
BIOCHEMISTRY		94	43	137	4	6	10	4	1	5
		6.4	8.2	6.9	2.7	16.2	5.4	10.3	14.3	10.9
OTH LIFE SCIENCE		39	37	76	3	1	4	0	0	0
		2.7	7.0	3.8	2.0	2.7	2.2	0.0	0.0	0.0
MEDICINE		446	142	588	7	1	8	1	1	2
		30.6	27.0	29.7	4.7	2.7	4.3	2.6	14.3	4.3
DENTISTRY		86	16	102	1	0	1	1	0	1
		5.9	3.0	5.1	0.7	0.0	0.5	2.6	0.0	2.2
PHARMACY		35	13	48	1	1	2	0	0	0
		2.4	2.5	2.4	0.7	2.7	1.1	0.0	0.0	0.0
BUSINESS,MGMT		83	28	111	13	2	15	6	3	9
		5.7	5.3	5.6	8.7	5.4	8.1	15.4	42.9	19.6
LAW		23	5	28	0	0	0	0	0	0
		1.6	1.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
SOC SCI,HUMNTIES		20	11	31	2	0	2	1	0	1
		1.4	2.1	1.6	1.3	0.0	1.1	2.6	0.0	2.2
OTHER		11	6	17	6	2	8	0	0	0
		0.8	1.1	0.9	4.0	5.4	4.3	0.0	0.0	0.0
NO RESPONSE		2	4	6	2	0	2	2	0	2
		0.1	0.8	0.3	1.3	0.0	1.1	5.1	0.0	4.3
COLUMN TOTAL		1458	525	1983	149	37	186	39	7	46
		73.5	26.5	100.0	80.1	19.9	100.0	84.8	15.2	100.0

TABLE A-12

FIELD OF ADVANCED FURTHER STUDIES OF CHEMISTS

WHO PLAN FURTHER STUDIES (FULL-TIME) IN FALL, 1978

BY HIGHEST DEGREE EARNED AND SEX

FIELD OF ADVANCED FURTHER STUDIES		BACHLORS MEN	BACHLORS WOMEN	BACHLORS ROW TOTAL	MASTERS MEN	MASTERS WOMEN	MASTERS ROW TOTAL	PHD MEN	PHD WOMEN	PHD ROW TOTAL
CHEMISTRY	#	391	107	498	81	22	103	12	2	14
	%	32.8	28.5	31.7	73.0	73.3	73.0	66.7	50.0	63.6
OTH PHY SCI,MATH	#	31	9	40	2	0	2	1	0	1
	%	2.6	2.4	2.5	1.8	0.0	1.4	5.6	0.0	4.5
CHEMICAL ENGRING	#	27	15	42	3	0	3	0	0	0
	%	2.3	4.0	2.7	2.7	0.0	2.1	0.0	0.0	0.0
OTHER ENGRING	#	16	4	20	1	0	1	0	0	0
	%	1.3	1.1	1.3	0.9	0.0	0.7	0.0	0.0	0.0
BIOCHEMISTRY	#	71	29	100	4	6	10	2	1	3
	%	6.0	7.7	6.4	3.6	20.0	7.1	11.1	25.0	13.6
OTH LIFE SCIENCE	#	26	26	52	3	1	4	0	0	0
	%	2.2	6.9	3.3	2.7	3.3	2.8	0.0	0.0	0.0
MEDICINE	#	443	141	584	7	1	8	1	1	2
	%	37.1	37.5	37.2	6.3	3.3	5.7	5.6	25.0	9.1
DENTISTRY	#	85	16	101	1	0	1	1	0	1
	%	7.1	4.3	6.4	0.9	0.0	0.7	5.6	0.0	4.5
PHARMACY	#	31	12	43	1	0	1	0	0	0
	%	2.6	3.2	2.7	0.9	0.0	0.7	0.0	0.0	0.0
BUSINESS,MGMT	#	35	6	41	3	0	3	1	0	1
	%	2.9	1.6	2.6	2.7	0.0	2.1	5.6	0.0	4.5
LAW	#	21	3	24	0	0	0	0	0	0
	%	1.8	0.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0
SOC SCI,HUMNTIES	#	11	3	14	2	0	2	0	0	0
	%	0.9	0.8	0.9	1.8	0.0	1.4	0.0	0.0	0.0
OTHER	#	5	4	9	2	0	2	0	0	0
	%	0.4	1.1	0.6	1.8	0.0	1.4	0.0	0.0	0.0
NO RESPONSE	#	0	1	1	1	0	1	0	0	0
	%	0.0	0.3	0.1	0.9	0.0	0.7	0.0	0.0	0.0
COLUMN TOTAL	#	1193	376	1569	111	30	141	18	4	22
	%	76.0	24.0	100.0	78.7	21.3	100.0	81.8	18.2	100.0

TABLE A-13

FIELD OF ADVANCED FURTHER STUDIES OF CHEMICAL ENGINEERS

WHO PLAN FURTHER STUDIES (FULL-TIME OR PART-TIME) IN FALL, 1978

BY HIGHEST DEGREE EARNED AND SEX

FIELD OF ADVANCED FURTHER STUDIES		BACHLORS			MASTERS			PHD	
		MEN	WOMEN	ROW TOTAL	MEN	WOMEN	ROW TOTAL	MEN	ROW TOTAL
CHEMISTRY	#	9	2	11	1	0	1	0	0
	%	2.2	3.2	2.3	1.9	0.0	1.7	0.0	0.0
OTH PHY SCI,MATH	#	9	1	10	1	0	1	0	0
	%	2.2	1.6	2.1	1.9	0.0	1.7	0.0	0.0
CHEMICAL ENGRING	#	199	25	224	34	2	36	0	0
	%	48.2	40.3	47.2	63.0	50.0	62.1	0.0	0.0
OTHER ENGRING	#	18	0	18	1	1	2	0	0
	%	4.4	0.0	3.8	1.9	25.0	3.4	0.0	0.0
OTH LIFE SCIENCE	#	3	1	4	0	0	0	0	0
	%	0.7	1.6	0.8	0.0	0.0	0.0	0.0	0.0
MEDICINE	#	22	1	23	0	0	0	0	0
	%	5.3	1.6	4.8	0.0	0.0	0.0	0.0	0.0
DENTISTRY	#	2	0	2	0	0	0	0	0
	%	0.5	0.0	0.4	0.0	0.0	0.0	0.0	0.0
BUSINESS,MGMT	#	134	28	162	14	1	15	1	1
	%	32.4	45.2	34.1	25.9	25.0	25.9	100.0	100.0
LAW	#	6	0	6	3	0	3	0	0
	%	1.5	0.0	1.3	5.6	0.0	5.2	0.0	0.0
SOC SCI,HUMNTIES	#	5	1	6	0	0	0	0	0
	%	1.2	1.6	1.3	0.0	0.0	0.0	0.0	0.0
OTHER	#	1	1	2	0	0	0	0	0
	%	0.2	1.6	0.4	0.0	0.0	0.0	0.0	0.0
NO RESPONSE	#	5	2	7	0	0	0	0	0
	%	1.2	3.2	1.5	0.0	0.0	0.0	0.0	0.0
COLUMN TOTAL	#	413	62	475	54	4	58	1	1
	%	86.9	13.1	100.0	93.1	6.9	100.0	100.0	100.0

TABLE A-14

FIELD OF ADVANCED FURTHER STUDIES OF CHEMICAL ENGINEERS WHO PLAN FURTHER STUDIES (FULL-TIME) IN FALL, 1978 BY HIGHEST DEGREE EARNED AND SEX

FIELD OF ADVANCED FURTHER STUDIES		BACHLORS MEN	BACHLORS WOMEN	BACHLORS ROW TOTAL	MASTERS MEN	MASTERS WOMEN	MASTERS ROW TOTAL
CHEMISTRY	#	4	2	6	0	0	0
	%	2.1	10.0	2.9	0.0	0.0	0.0
OTH PHY SCI,MATH	#	3	0	3	1	0	1
	%	1.6	0.0	1.4	3.2	0.0	3.0
CHEMICAL ENGRING	#	130	17	147	26	1	27
	%	68.4	85.0	70.0	83.9	50.0	81.8
OTHER ENGRING	#	8	0	8	1	1	2
	%	4.2	0.0	3.8	3.2	50.0	6.1
OTH LIFE SCIENCE	#	1	0	1	0	0	0
	%	0.5	0.0	0.5	0.0	0.0	0.0
MEDICINE	#	21	1	22	0	0	0
	%	11.1	5.0	10.5	0.0	0.0	0.0
DENTISTRY	#	2	0	2	0	0	0
	%	1.1	0.0	1.0	0.0	0.0	0.0
BUSINESS,MGMT	#	16	0	16	3	0	3
	%	8.4	0.0	7.6	9.7	0.0	9.1
LAW	#	3	0	3	0	0	0
	%	1.6	0.0	1.4	0.0	0.0	0.0
SOC SCI,HUMNTIES	#	1	0	1	0	0	0
	%	0.5	0.0	0.5	0.0	0.0	0.0
NO RESPONSE	#	1	0	1	0	0	0
	%	0.5	0.0	0.5	0.0	0.0	0.0
COLUMN TOTAL	#	190	20	210	31	2	33
	%	90.5	9.5	100.0	93.9	6.1	100.0

TABLE A-15

FIELD OF ADVANCED FURTHER STUDIES OF B.S. CHEMISTS WHO PLAN FURTHER STUDIES (FULL-TIME OR PART-TIME) IN FALL, 1978 BY CERTIFICATION STATUS

FIELD OF ADVANCED FURTHER STUDIES		CERTIFD.[1]	NON-CERTIFD.	ROW TOTAL
CHEMISTRY	#	478	196	674
	%	49.3	19.3	34.0
OTH PHY SCI,MATH	#	31	33	64
	%	3.2	3.2	3.2
CHEMICAL ENGRING	#	41	28	69
	%	4.2	2.8	3.5
OTHER ENGRING	#	22	11	33
	%	2.3	1.1	1.7
BIOCHEMISTRY	#	69	68	137
	%	7.1	6.7	6.9
OTH LIFE SCIENCE	#	30	46	76
	%	3.1	4.5	3.8
MEDICINE	#	179	410	589
	%	18.5	40.4	29.7
DENTISTRY	#	23	79	102
	%	2.4	7.8	5.1
PHARMACY	#	18	30	48
	%	1.9	3.0	2.4
BUSINESS,MGMT	#	43	68	111
	%	4.4	6.7	5.6
LAW	#	12	16	28
	%	1.2	1.6	1.4
SOC SCI,HUMNTIES	#	13	18	31
	%	1.3	1.8	1.6
OTHER	#	8	9	17
	%	0.8	0.9	0.9
NO RESPONSE	#	2	4	6
	%	0.2	0.4	0.3
COLUMN TOTAL	#	969	1016	1985
	%	48.8	51.2	100.0

1 SEE NOTE ON TABLE A-9.

TABLE A-16

FIELD OF ADVANCED FURTHER STUDIES OF B.S. CHEMISTS WHO PLAN FURTHER STUDIES (FULL-TIME) IN FALL, 1978 BY CERTIFICATION STATUS

FIELD OF ADVANCED FURTHER STUDIES		CERTIFD.[1]	NON-CERTIFD.	ROW TOTAL
CHEMISTRY	#	369	130	499
	%	49.0	15.9	31.8
OTH PHY SCI,MATH		19	21	40
		2.5	2.6	2.5
CHEMICAL ENGRING		23	19	42
		3.1	2.3	2.7
OTHER ENGRING		14	6	20
		1.9	0.7	1.3
BIOCHEMISTRY		55	45	100
		7.3	5.5	6.4
OTH LIFE SCIENCE		21	31	52
		2.8	3.8	3.3
MEDICINE		177	408	585
		23.5	49.9	37.2
DENTISTRY		23	78	101
		3.1	9.5	6.4
PHARMACY		16	27	43
		2.1	3.3	2.7
BUSINESS,MGMT		15	26	41
		2.0	3.2	2.6
LAW		11	13	24
		1.5	1.6	1.5
SOC SCI,HUMNTIES		7	7	14
		0.9	0.9	0.9
OTHER		2	7	9
		0.3	0.9	0.6
NO RESPONSE		1	0	1
		0.1	0.0	0.1
COLUMN TOTAL		753	818	1571
		47.9	52.1	100.0

1 SEE NOTE ON TABLE A-9.

TABLE A-17

NUMBER OF FIRM JOB OFFERS TO FULL-TIME EMPLOYED CHEMISTS

BY HIGHEST DEGREE EARNED AND SEX

NUMBER OF OFFERS		BACHLORS MEN	BACHLORS WOMEN	BACHLORS ROW TOTAL	MASTERS MEN	MASTERS WOMEN	MASTERS ROW TOTAL	PHD MEN	PHD WOMEN	PHD ROW TOTAL
INEXPERIENCED										
1	#	169	87	256	33	9	42	60	8	68
	%	53.0	42.6	48.9	58.9	45.0	55.3	45.1	33.3	43.3
2		76	62	138	9	6	15	34	9	43
		23.8	30.4	26.4	16.1	30.0	19.7	25.6	37.5	27.4
3		44	35	79	7	1	8	20	4	24
		13.8	17.2	15.1	12.5	5.0	10.5	15.0	16.7	15.3
4		17	13	30	3	1	4	8	0	8
		5.3	6.4	5.7	5.4	5.0	5.3	6.0	0.0	5.1
5		9	5	14	2	2	4	6	0	6
		2.8	2.5	2.7	3.6	10.0	5.3	4.5	0.0	3.8
6 OR 7		2	1	3	1	1	2	3	2	5
		0.6	0.5	0.6	1.8	5.0	2.6	2.3	8.3	3.2
8 OR 9		0	1	1	0	0	0	0	1	1
		0.0	0.5	0.2	0.0	0.0	0.0	0.0	4.2	0.6
10 OR MORE		2	0	2	1	0	1	2	0	2
		0.6	0.0	0.4	1.8	0.0	1.3	1.5	0.0	1.3
COLUMN TOTAL		319	204	523	56	20	76	133	24	157
		61.0	39.0	100.0	73.7	26.3	100.0	84.7	15.3	100.0
EXPERIENCED										
1	#	59	19	78	30	8	38	32	8	40
	%	62.1	48.7	58.2	68.2	57.1	65.5	43.2	57.1	45.5
2		20	7	27	10	2	12	16	2	18
		21.1	17.9	20.1	22.7	14.3	20.7	21.6	14.3	20.5
3		9	9	18	4	4	8	13	3	16
		9.5	23.1	13.4	9.1	28.6	13.8	17.6	21.4	18.2
4		1	2	3	0	0	0	6	0	6
		1.1	5.1	2.2	0.0	0.0	0.0	8.1	0.0	6.8
5		3	0	3	0	0	0	2	0	2
		3.2	0.0	2.2	0.0	0.0	0.0	2.7	0.0	2.3
6 OR 7		3	1	4	0	0	0	3	1	4
		3.2	2.6	3.0	0.0	0.0	0.0	4.1	7.1	4.5
8 OR 9		0	0	0	0	0	0	1	0	1
		0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.1
10 OR MORE		0	1	1	0	0	0	1	0	1
		0.0	2.6	0.7	0.0	0.0	0.0	1.4	0.0	1.1
COLUMN TOTAL		95	39	134	44	14	58	74	14	88
		70.9	29.1	100.0	75.9	24.1	100.0	84.1	15.9	100.0

TABLE A-18

NUMBER OF FIRM JOB OFFERS TO FULL-TIME EMPLOYED CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND SEX

NUMBER OF OFFERS		BACHLORS MEN	BACHLORS WOMEN	BACHLORS ROW TOTAL	MASTERS MEN	MASTERS WOMEN	MASTERS ROW TOTAL	PHD MEN	PHD WOMEN	PHD ROW TOTAL
INEXPERIENCED	#	105	12	117	21	0	21	7	0	7
1	%	21.9	11.0	19.9	28.4	0.0	26.6	19.4	0.0	18.9
2		77	18	95	10	1	11	6	0	6
		16.0	16.5	16.1	13.5	20.0	13.9	16.7	0.0	16.2
3		89	16	105	15	0	15	8	0	8
		18.5	14.7	17.8	20.3	0.0	19.0	22.2	0.0	21.6
4		65	13	78	13	0	13	2	0	2
		13.5	11.9	13.2	17.6	0.0	16.5	5.6	0.0	5.4
5		41	22	63	4	2	6	2	0	2
		8.5	20.2	10.7	5.4	40.0	7.6	5.6	0.0	5.4
6 OR 7		55	13	68	6	0	6	6	1	7
		11.5	11.9	11.5	8.1	0.0	7.6	16.7	100.0	18.9
8 OR 9		20	10	30	0	0	0	2	0	2
		4.2	9.2	5.1	0.0	0.0	0.0	5.6	0.0	5.4
10 OR MORE		28	5	33	5	2	7	3	0	3
		5.8	4.6	5.6	6.8	40.0	8.9	8.3	0.0	8.1
COLUMN TOTAL		480	109	589	74	5	79	36	1	37
		81.5	18.5	100.0	93.7	6.3	100.0	97.3	2.7	100.0
EXPERIENCED	#	17	3	20	5	2	7	4	0	4
1	%	17.5	10.7	16.0	15.2	40.0	18.4	20.0	0.0	20.0
2		14	2	16	7	0	7	1	0	1
		14.4	7.1	12.8	21.2	0.0	18.4	5.0	0.0	5.0
3		13	3	16	0	1	1	5	0	5
		13.4	10.7	12.8	0.0	20.0	2.6	25.0	0.0	25.0
4		11	2	13	4	2	6	3	0	3
		11.3	7.1	10.4	12.1	40.0	15.8	15.0	0.0	15.0
5		8	5	13	4	0	4	0	0	0
		8.2	17.9	10.4	12.1	0.0	10.5	0.0	0.0	0.0
6 OR 7		15	5	20	6	0	6	4	0	4
		15.5	17.9	16.0	18.2	0.0	15.8	20.0	0.0	20.0
8 OR 9		8	3	11	4	0	4	1	0	1
		8.2	10.7	8.8	12.1	0.0	10.5	5.0	0.0	5.0
10 OR MORE		11	5	16	3	0	3	2	0	2
		11.3	17.9	12.8	9.1	0.0	7.9	10.0	0.0	10.0
COLUMN TOTAL		97	28	125	33	5	38	20	0	20
		77.6	22.4	100.0	86.8	13.2	100.0	100.0	0.0	100.0

TABLE A-19

AVERAGE NUMBER OF FIRM JOB OFFERS

TO FULL-TIME EMPLOYED MINORITY CHEMISTS AND CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND SEX

HIGHEST DEGREE EARNED		CHEMISTS MEN	CHEMISTS WOMEN	CHEMISTS ROW TOTAL	CHEM ENGINEERS MEN	CHEM ENGINEERS WOMEN	CHEM ENGINEERS ROW TOTAL
INEXPERIENCED							
BACHLORS	MEAN	2.2	1.9	2.0	3.5	3.4	3.4
	COUNT	11	9	20	21	8	29
	STD DEV	1.3	1.3	1.3	2.8	1.9	2.6
MASTERS		10.5	2.0	4.8	3.4	3.5	3.4
		2	4	6	7	2	9
		13.4	2.0	7.6	5.1	2.1	4.5
PHD		1.7	0.0	1.7	2.3	0.0	2.3
		15	0	15	3	0	3
		1.1	0.0	1.1	1.2	0.0	1.2
COLUMN	MEAN	2.5	1.9	2.3	3.4	3.4	3.4
	COUNT	28	13	41	31	10	41
	STD DEV	3.6	1.4	3.1	3.3	1.8	3.0
EXPERIENCED							
BACHLORS	MEAN	2.0	1.0	1.8	2.7	9.5	4.2
	COUNT	7	2	9	7	2	9
	STD DEV	1.4	0.0	1.3	1.3	9.2	4.5
MASTERS		1.3	1.3	1.3	2.8	4.0	3.0
		8	3	11	4	1	5
		0.5	0.6	0.5	2.2	0.0	2.0
PHD		2.5	1.8	2.3	2.8	0.0	2.8
		12	4	16	5	0	5
		2.5	1.0	2.2	2.0	0.0	2.0
COLUMN	MEAN	2.0	1.4	1.9	2.8	7.7	3.5
	COUNT	27	9	36	16	3	19
	STD DEV	1.9	0.7	1.7	1.7	7.2	3.4

TABLE B-1

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMISTS AND CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND SEX

HIGHEST DEGREE EARNED		MEN	WOMEN	ROW TOTAL
CHEMISTS				
BACHLORS	MEDIAN	12500.	13000.	12700
	MEAN	12614.	12708.	12651.
	COUNT	315	202	517
	STD DEV	2504.	2688.	2575.
MASTERS		15200.	12000.	15000
		15097.	13057.	14560.
		56	20	76
		2947.	3281.	3149.
PHD		21000.	19600.	21000
		19605.	17892.	19345.
		134	24	158
		4182.	4955.	4335.
COLUMN	MEAN	14745.	13242.	14252.
	COUNT	505	246	751
	STD DEV	4313.	3380.	4090.
CHEM ENGINEERS				
BACHLORS	MEDIAN	18200.	18300.	18200
	MEAN	17995.	18133.	18021.
	COUNT	480	108	588
	STD DEV	1222.	876.	1167.
MASTERS		19200.	19500.	19200
		19231.	19180.	19228.
		73	5	78
		1253.	1327.	1249.
PHD		23100.	22000.	23100
		22130.	22000.	22127.
		37	1	38
		3778.	0.	3727.
COLUMN	MEAN	18407.	18213.	18376.
	COUNT	590	114	704
	STD DEV	1836.	981.	1728.

TABLE B-2

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMISTS

BY HIGHEST DEGREE EARNED AND EMPLOYER

HIGHEST DEGREE EARNED		EMPLOYER									
		TOTAL PRIVATE INDUSTRY	MANUFAC-TURING	NONMANU-FACTURING	COLLEGE, UNIVRSTY	HIGH SCH, OTHR SC	FEDERAL GOVERNMT	STATE, LOCL GOV	HOSPITAL, IND LAB	NONPRFT RES INST	ROW TOTAL
BACHLORS	MEDIAN	13500.	13500.	13500.	9100.	9200.	10000.	10600.	10000.	10800.	
	MEAN	13383.	13398.	13270.	9707.	9468.	10733.	11078.	10270.	11409.	12629.
	COUNT	383	338	45	33	12	14	15	32	24	513
	STD DEV	2245.	2240.	2301.	2484.	1147.	1485.	2076.	1785.	2457.	2571.
MASTERS		15600.	15600.	15100.	11000.	8825.	15090.	9924.	11200.	15900.	
		15669.	15458.	16831.	12038.	10456.	15090.	9924.	12275.	14663.	14560.
		52	44	8	8	6	1	1	4	4	76
		2619.	2519.	3025.	2596.	2994.	0.	0.	2766.	2608.	3149.
PHD		21500.	21300.	22500.	12500.	0.	17000.	12000.	21600.	22200.	
		21477.	21401.	22356.	12346.	0.	15919.	12000.	21600.	19601.	19345.
		113	104	9	32	0	4	1	1	7	158
		1788.	1799.	1451.	2585.	0.	3997.	0.	0.	5004.	4335.
COLUMN	MEAN	15269.	15297.	15048.	11119.	9798.	12054.	11065.	10793.	13419.	14246.
	COUNT	548	486	62	73	18	19	17	37	35	747
	STD DEV	3909.	3904.	3972.	2820.	1928.	3073.	1977.	2667.	4473.	4099.

TABLE B-3

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMISTS

BY HIGHEST DEGREE EARNED AND EMPLOYER - MEN

HIGHEST DEGREE EARNED		EMPLOYER									
		TOTAL PRIVATE INDUSTRY	MANUFAC-TURING	NONMANU-FACTURING	COLLEGE, UNIVRSTY	HIGH SCH, OTHR SC	FEDERAL GOVERNMT	STATE, LOCL GOV	HOSPITAL, IND LAB	NONPRFT RES INST	ROW TOTAL
BACHLORS	MEDIAN	13200.	13200.	13600.	10000.	9600.	10000.	10608.	10440.	10500.	
	MEAN	13244.	13211	13482.	10499.	9615.	10855.	11333.	10526.	10175.	12599.
	COUNT	240	211	29	19	8	11	7	21	8	314
	STD DEV	2242.	2261.	2122.	2847.	1352.	1665.	2232.	1962.	1435.	2493.
MASTERS		15600.	15600.	17400.	13300.	8825.	0.	0.	14000.	15900.	
		15704.	15436.	17079.	13933.	10185.	0.	0.	14500.	14663.	15097.
		43	36	7	3	4	0	0	2	4	56
		2609.	2446.	3179.	3296.	3237.	0.	0.	707.	2608.	2947.
PHD		21500.	21500.	22500.	13000.	0.	18250.	0.	21600.	17500.	
		21541.	21448.	22600.	12563.	0.	15558.	0.	21600.	18701.	19605.
		99	91	8	25	0	3	0	1	6	134
		1806.	1818.	1338.	2705.	0.	4814.	0.	0.	4822.	4182.
COLUMN	MEAN	15671.	15665.	15712.	11816.	9805.	11863.	11333.	11319.	14014.	14739.
	COUNT	382	338	44	47	12	14	7	24	18	504
	STD DEV	4172.	4183.	4137.	2962.	2024.	3116.	2232.	3069.	4865.	4316.

TABLE B-4

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMISTS

BY HIGHEST DEGREE EARNED AND EMPLOYER - WOMEN

HIGHEST DEGREE EARNED		EMPLOYER									
		TOTAL PRIVATE INDUSTRY	MANUFAC-TURING	NONMANU-FACTURING	COLLEGE, UNIVRSTY	HIGH SCH, OTHR SC,	FEDERAL GOVERNMT	STATE, LOCL GOV	HOSPITAL, IND LAB	NONPRFT RES INST	ROW TOTAL
BACHLORS	MEDIAN	14000.	14004.	12400.	9000.	9000.	10400.	9700.	10000.	11880.	
	MEAN	13617.	13710.	12885.	8631.	9175.	10286.	10856.	9782.	12025.	12676.
	COUNT	143	127	16	14	4	3	8	11	16	199
	STD DEV	2238.	2180.	2624.	1342.	624.	288.	2056.	1336.	2660.	2694.
MASTERS		15600.	15600.	15100.	11000.	8500.	15090.	9924.	8900.	0.	
		15502.	15552.	15100.	10900.	11000.	15090.	9924.	10050.	0.	13057.
		9	8	1	5	2	1	1	2	0	20
		2819.	3010.	0.	1432.	3536.	0.	0.	1626.	0.	3281.
PHD		20400.	21000.	20400.	10000.	0.	17000.	12000.	0.	25000.	
		21029.	21077.	20400.	11571.	0.	17000.	12000.	0.	25000.	17892.
		14	13	1	7	0	1	1	0	1	24
		1643.	1700.	0.	2090.	0.	0.	0.	0.	0.	4955.
COLUMN	MEAN	14345.	14456.	13425.	9859.	9783.	12590.	10877.	9823.	12789.	13223.
	COUNT	166	148	18	26	6	5	10	13	17	243
	STD DEV	3038.	3027.	3062.	2048.	1903.	3232.	1879.	1310.	4066.	3395.

TABLE B-5

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND EMPLOYER

HIGHEST DEGREE EARNED		EMPLOYER									ROW TOTAL
		TOTAL PRIVATE INDUSTRY	MANUFAC-TURING	NONMANU-FACTURING	COLLEGE, UNIVRSTY	FEDERAL GOVERNMT	STATE, LOCL GOV	HOSPITAL IND LAB	NONPRFT RES INST	OTHER	
BACHLORS	MEDIAN	18300.	18300.	18000.	0.	17520.	13900.	18000.	17700.	17160.	
	MEAN	18083.	18143.	17742.	0.	16514.	15004.	18000.	18075.	17160.	13028.
	COUNT	565	480	85	0	12	4	1	4	1	587
	STD DEV	1090.	939.	1684.	0.	2039.	1494.	0.	619.	0.	1163.
MASTERS		19200.	19200.	19200.	18600.	0.	0.	0.	19000.	0.	
		19254.	19369.	18813.	18700.	0.	0.	0.	19133.	0.	19228.
		72	57	15	3	0	0	0	3	0	78
		1284.	1223.	1458.	458.	0.	0.	0.	907.	0.	1249.
PHD		23700.	24000.	22000.	17500.	18100.	0.	0.	0.	0.	
		24028.	24365.	22175.	17498.	20550.	0.	0.	0.	0.	22127.
		26	22	4	10	2	0	0	0	0	38
		1534.	1288.	1609.	3799.	3465.	0.	0.	0.	0.	3727.
COLUMN	MEAN	18443.	18513.	18067.	17776.	17091.	15004.	18000.	18529.	17160.	18383.
	COUNT	663	559	104	13	14	4	1	7	1	703
	STD DEV	1639.	1585.	1871.	3337.	2567.	1494.	0.	886.	0.	1725.

TABLE B-6

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND EMPLOYER - MEN

HIGHEST DEGREE EARNED		EMPLOYER								
		TOTAL PRIVATE INDUSTRY	MANUFAC-TURING	NONMANU-FACTURING	COLLEGE, UNIVRSTY	FEDERAL GOVERNMT	STATE, LOCL GOV	HOSPITAL IND LAB	NONPRFT RES INST	ROW TOTAL
BACHLORS	MEDIAN	18200.	18300.	18000.	0.	18000.	13900.	18000.	17700.	
	MEAN	18050.	18106.	17760.	0.	16634.	14487.	18000.	18075.	18002.
	COUNT	461	387	74	0	9	3	1	4	478
	STD DEV	1159.	1006.	1746.	0.	1926.	1322.	0.	619.	1220.
MASTERS		19200.	19200.	19200.	18600.	0.	0.	0.	19000.	
		19259.	19388.	18813.	18700.	0.	0.	0.	19133.	19231.
		67	52	15	3	0	0	0	3	73
		1291.	1225.	1458.	458.	0.	0.	0.	907.	1253.
PHD		24000.	24200.	22000.	17500.	18100.	0.	0.	0.	
		24110.	24478.	22175.	17498.	20550.	0.	0.	0.	22130.
		25	21	4	10	2	0	0	0	37
		1508.	1203.	1609.	3799.	3465.	0.	0.	0.	3778.
COLUMN	MEAN	18471.	18542.	18120.	17776.	17346.	14487.	18000.	18529.	18414.
	COUNT	553	460	93	13	11	3	1	7	588
	STD DEV	1755.	1713.	1930.	3337.	2584.	1322.	0.	886.	1836.

TABLE B-7

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND EMPLOYER - WOMEN

HIGHEST DEGREE EARNED		EMPLOYER: TOTAL PRIVATE INDUSTRY	MANUFACTURING	NONMANUFACTURING	FEDERAL GOVERNMT	STATE, LOCL GOV	OTHER	ROW TOTAL
BACHLORS	MEDIAN	18300.	18300.	18300.	17520.	16554.	17160.	
	MEAN	18216.	18288.	17615.	16156.	16554.	17160.	18133.
	COUNT	103	92	11	3	1	1	108
	STD DEV	705.	582.	1239.	2789.	0.	0.	876.
MASTERS		19500.	19500.	0.	0.	0.	0.	
		19180.	19180.	0.	0.	0.	0.	19180.
		5	5	0	0	0	0	5
		1327.	1327.	0.	0.	0.	0.	1327.
PHD		22000.	22000.	0.	0.	0.	0.	
		22000.	22000.	0.	0.	0.	0.	22000.
		1	1	0	0	0	0	1
		0.	0.	0.	0.	0.	0.	0.
COLUMN	MEAN	18295.	18371.	17615.	16156.	16554.	17160.	18213.
	COUNT	109	98	11	3	1	1	114
	STD DEV	839.	753.	1239.	2789.	0.	0.	981.

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMISTS AND CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND GEOGRAPHIC REGION

HIGHEST DEGREE EARNED		GEOGRAPHIC REGION									ROW TOTAL
		PACIFIC	MOUNTAIN	WEST NO. CENTRAL	WEST SO. CENTRAL	EAST NO. CENTRAL	EAST SO. CENTRAL	MIDDLE ATLANTIC	SOUTH ATLANTIC	NEW ENGLAND	
CHEMISTS											
BACHLORS	MEDIAN	12500.	15500.	11880.	13200.	13500.	13500.	13000.	10800.	11800.	12657.
	MEAN	12894.	14122.	12082.	13251.	13351.	12618.	12603.	11582.	11987.	510
	COUNT	33	11	53	38	123	16	135	64	37	2580.
	STD DEV	2610.	2859.	2436.	3027.	2484.	2655.	2091.	2743.	2967.	
MASTERS		15090.	0.	17400.	16620.	15200.	11000.	14000.	14000.	11000.	14530.
		14243.	0.	17850.	16990.	15339.	11500.	13820.	14014.	12011.	75
		9	0	2	11	16	2	20	7	8	3159.
		2760.	0.	636.	3349.	2813.	707.	2875.	2586.	3112.	
PHD		19000.	21000.	13500.	20200.	21300.	19633.	21000.	21500.	19000.	19345.
		17111.	21300.	14481.	20196.	20164.	19960.	19963.	19859.	17679.	158
		9	2	5	20	28	5	36	35	14	4335.
		5366.	424.	3838.	3443.	4129.	1432.	4423.	4256.	4347.	
COLUMN	MEAN	13876.	15226.	12600.	15860.	14684.	14117.	14117.	14476.	13341.	14268.
	COUNT	51	13	64	69	167	23	191	106	59	743
	STD DEV	3568.	3754.	2895.	4414.	3801.	3901.	3953.	5054.	4102.	4101.
CHEM ENGINEERS											
BACHLORS	MEDIAN	18000.	18000.	18000.	18500.	18300.	18050.	18000.	18200.	17100.	18030.
	MEAN	17893.	17990.	17687.	18586.	18094.	17971.	17865.	18028.	17033.	584
	COUNT	51	14	32	125	108	40	119	59	36	1171.
	STD DEV	1040.	475.	1161.	1071.	1178.	908.	1143.	889.	1648.	
MASTERS		18720.	18600.	0.	19800.	19500.	19200.	19000.	19200.	19800.	19259.
		18853.	18600.	0.	19652.	19375.	20100.	19288.	18918.	19200.	77
		8	1	0	10	16	2	25	12	3	1226.
		1134.	0.	0.	922.	1796.	1273.	986.	1145.	1308.	
PHD		23700.	23000.	26600.	23500.	23000.	0.	23000.	22000.	10472.	22127.
		23700.	23000.	26600.	23835.	22583.	0.	21286.	21737.	15486.	38
		1	1	1	8	8	0	14	3	2	3727.
		0.	0.	0.	3058.	2742.	0.	3673.	3601.	3505.	
COLUMN	MEAN	18118.	18341.	17957.	18954.	18521.	18072.	18393.	18323.	17165.	18388.
	COUNT	60	16	33	143	132	42	158	74	41	699
	STD DEV	1309.	1327.	1927.	1735.	1776.	1017.	1826.	1337.	2149.	1731.

Note: See page 47 for list of states by geographic regions.

TABLE B-9

STARTING YEARLY SALARIES
OF INEXPERIENCED FULL-TIME B.S. CHEMISTS
BY EMPLOYER AND CERTIFICATION STATUS

EMPLOYER		CERTIFD.[1]	NON-CERTIFD.	ROW TOTAL
MANUFAC-TURING	MEDIAN	13800.	13000.	
	MEAN	13480.	13275.	13398.
	COUNT	203	135	338
	STD DEV	2289.	2169.	2240.
NONMANUFACTURING		13500.	12400.	
		13358.	13185.	13270.
		22	23	45
		2504.	2143.	2301.
COLLEGE,UNIVRSTY		9100.	9500.	
		9126.	10191.	9707.
		15	18	33
		2141.	2700.	2484.
HIGH SCH,OTHR SC		8500.	9600.	
		8967.	9636.	9468.
		3	9	12
		896.	1217.	1147.
FEDERAL GOVERNMT		10000.	10400.	
		10934.	10372.	10733.
		9	5	14
		1692.	1086.	1485.
STATE, LOCL GOV		11820.	10200.	
		11494.	10604.	11078.
		8	7	15
		2161.	2029.	2076.
HOSPITAL,IND LAB		10000.	10000.	
		10015.	10526.	10270.
		16	16	32
		1432.	2097.	1785.
NONPRFT RES INST		11000.	10560.	
		12099.	10593.	11409.
		13	11	24
		2561.	2158.	2457.
ALL EMPLOYERS		13200.	12000.	
		12821.	12432.	12651.
		291	226	517
		2592.	2542.	2575.

[1] SEE NOTE ON TABLE A-9.

TABLE B-10

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME M.S. AND PH.D. CHEMISTS

BY FIELD OF HIGHEST DEGREE

FIELD OF HIGHEST DEGREE		MASTERS	PHD	ROW TOTAL
CHEMSTRY, GENERAL	MEDIAN	12500.	22000.	
	MEAN	13193.	22000.	13822.
	COUNT	13	1	14
	STD DEV	3258.	0.	3916.
BIOCHEMISTRY		11200.	12000.	
		13875.	14594.	14258.
		7	8	15
		4997.	5972.	5355.
ANALYTICAL		15000.	21000.	
		15320.	19811.	18689.
		10	30	40
		2271.	3716.	3916.
INORGANIC		15000.	20500.	
		14718.	18219.	17582.
		6	27	33
		1582.	5342.	5046.
ORGANIC		13500.	21000.	
		14034.	20001.	18473.
		21	61	82
		3305.	3306.	4202.
PHARMA, MED, CLN		15000.	18000.	
		15000.	18000.	16500.
		1	1	2
		0.	0.	2121.
PHYSICAL,THEORET		15200.	21300.	
		15403.	19681.	18773.
		7	26	33
		1773.	4917.	4757.
POLYMER,MACROMOL		15600.	17500.	
		14067.	17500.	14925.
		3	1	4
		2831.	0.	2879.
CHEMSTRY,OTHER		15600.	21000.	
		17088.	21417.	18268.
		8	3	11
		2877.	3394.	3491.
ALL FIELDS		15000.	21000.	
		14560.	19345.	17791.
		76	158	234
		3149.	4335.	4571.

TABLE B-11

STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME MINORITY CHEMISTS AND CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED

HIGHEST DEGREE EARNED		CHEMISTS	CHEM ENGINEERS
BACHLORS	MEDIAN	13200.	18100.
	MEAN	13380.	18200.
	COUNT	19	29
	STD DEV	2952.	2106.
MASTERS		11000.	18600.
		11571.	18556.
		6	9
		1221.	965.
PHD		21600.	23000.
		20184.	23500.
		16	4
		4305.	1291.
COLUMN	MEAN	15771.	18781.
	COUNT	41	42
	STD DEV	4920.	2399.

TABLE B-12

YEARLY SALARIES

OF POSTDOCTORAL CHEMISTS AND CHEMICAL ENGINEERS

BY EMPLOYER

EMPLOYER		CHEMISTS	CHEM ENGINEERS
MANUFACTURING	MEDIAN	22000.	0.
	MEAN	20414.	0.
	COUNT	7	0
	STD DEV	4133.	.
NONMANUFACTURING		10000.	0.
		11600.	0.
		2	0
		2263.	0.
COLLEGE,UNIVRSTY		10000.	13000.
		10023.	16000.
		97	4
		970.	4082.
FEDERAL GOVERNMT		15000.	0.
		14154.	0.
		15	0
		3068.	0.
HOSPITAL,IND LAB		10000.	0.
		14000.	0.
		2	0
		5657.	0.
NONPRFT RES INST		12500.	0.
		13043.	0.
		7	0
		2522.	0.
OTHER		10000.	0.
		10000.	0.
		1	0
		0.	0.
ALL EMPLOYERS		10000.	13000.
		11297.	16000.
		131	4
		3162.	4082.
COLUMN	MEAN	11297.	16000.
	COUNT	131	4
	STD DEV	3162.	4082.

TABLE C-1

AGE DISTRIBUTION

OF B.S. CHEMISTS AND CHEMICAL ENGINEERS

BY SEX

AGE CATEGORY		CHEMISTS MEN	CHEMISTS WOMEN	CHEMISTS ROW TOTAL	CHEM ENGINEERS MEN	CHEM ENGINEERS WOMEN	CHEM ENGINEERS ROW TOTAL
19 OR LESS	#	3	0	3	1	0	1
	%	0.2	0.0	0.1	0.1	0.0	0.1
20		14	3	17	4	0	4
		0.7	0.4	0.6	0.5	0.0	0.4
21		109	80	189	25	7	32
		5.7	10.4	7.0	2.9	4.0	3.1
22		1112	481	1593	464	104	568
		58.0	62.3	59.3	53.3	59.8	54.4
23		372	108	480	228	49	277
		19.4	14.0	17.9	26.2	28.2	26.5
24		104	33	137	85	5	90
		5.4	4.3	5.1	9.8	2.9	8.6
25		49	21	70	16	3	19
		2.6	2.7	2.6	1.8	1.7	1.8
26		34	9	43	11	3	14
		1.8	1.2	1.6	1.3	1.7	1.3
27		32	7	39	8	0	8
		1.7	0.9	1.5	0.9	0.0	0.8
28		19	4	23	5	1	6
		1.0	0.5	0.9	0.6	0.6	0.6
29		21	5	26	8	1	9
		1.1	0.6	1.0	0.9	0.6	0.9
30-34		33	14	47	13	1	14
		1.7	1.8	1.7	1.5	0.6	1.3
35-39		11	6	17	3	0	3
		0.6	0.8	0.6	0.3	0.0	0.3
40-49		3	1	4	0	0	0
		0.2	0.1	0.1	0.0	0.0	0.0
COLUMN TOTAL		1916	772	2688	871	174	1045
		71.3	28.7	100.0	83.3	16.7	100.0

TABLE C-2

AGE DISTRIBUTION

OF M.S. CHEMISTS AND CHEMICAL ENGINEERS

BY SEX

AGE CATEGORY		CHEMISTS MEN	CHEMISTS WOMEN	CHEMISTS ROW TOTAL	CHEM ENGINEERS MEN	CHEM ENGINEERS WOMEN	CHEM ENGINEERS ROW TOTAL
21	#	1	1	2	0	0	0
	%	0.4	1.2	0.6	0.0	0.0	0.0
22		9	0	9	6	1	7
		3.8	0.0	2.8	4.0	6.7	4.2
23		6	2	8	25	1	26
		2.5	2.5	2.5	16.6	6.7	15.7
24		37	19	56	27	1	28
		15.7	23.5	17.7	17.9	6.7	16.9
25		54	17	71	24	4	28
		22.9	21.0	22.4	15.9	26.7	16.9
26		41	11	52	23	1	24
		17.4	13.6	16.4	15.2	6.7	14.5
27		21	7	28	14	2	16
		8.9	8.6	8.8	9.3	13.3	9.6
28		15	5	20	9	2	11
		6.4	6.2	6.3	6.0	13.3	6.6
29		14	5	19	4	0	4
		5.9	6.2	6.0	2.6	0.0	2.4
30-34		31	8	39	16	2	18
		13.1	9.9	12.3	10.6	13.3	10.8
35-39		7	6	13	2	0	2
		3.0	7.4	4.1	1.3	0.0	1.2
40-49		0	0	0	1	0	1
		0.0	0.0	0.0	0.7	0.0	0.6
50-64		0	0	0	0	1	1
		0.0	0.0	0.0	0.0	6.7	0.6
COLUMN TOTAL		236	81	317	151	15	166
		74.4	25.6	100.0	91.0	9.0	100.0

TABLE C-3

AGE DISTRIBUTION

OF PH.D. CHEMISTS AND CHEMICAL ENGINEERS

BY SEX

AGE CATEGORY		CHEMISTS MEN	CHEMISTS WOMEN	CHEMISTS ROW TOTAL	CHEM ENGINEERS MEN	CHEM ENGINEERS WOMEN	CHEM ENGINEERS ROW TOTAL
21	#	1	0	1	0	0	0
	%	0.3	0.0	0.2	0.0	0.0	0.0
24		2	1	3	0	0	0
		0.6	1.7	0.7	0.0	0.0	0.0
25		6	1	7	1	0	1
		1.7	1.7	1.7	1.6	0.0	1.5
26		30	6	36	4	0	4
		8.6	10.2	8.9	6.3	0.0	6.2
27		57	16	73	12	0	12
		16.4	27.1	18.0	18.8	0.0	18.5
28		69	13	82	14	1	15
		19.9	22.0	20.2	21.9	100.0	23.1
29		48	4	52	12	0	12
		13.8	6.8	12.8	18.8	0.0	18.5
30-34		109	16	125	18	0	18
		31.4	27.1	30.8	28.1	0.0	27.7
35-39		17	2	19	3	0	3
		4.9	3.4	4.7	4.7	0.0	4.6
40-49		7	0	7	0	0	0
		2.0	0.0	1.7	0.0	0.0	0.0
50-64		1	0	1	0	0	0
		0.3	0.0	0.2	0.0	0.0	0.0
COLUMN TOTAL		347	59	406	64	1	65
		85.5	14.5	100.0	98.5	1.5	100.0

TABLE C-4

AGE DISTRIBUTION

OF POSTDOCTORAL CHEMISTS AND CHEMICAL ENGINEERS

BY SEX

AGE CATEGORY		CHEMISTS MEN	CHEMISTS WOMEN	ROW TOTAL	CHEM ENGINEERS MEN	CHEM ENGINEERS ROW TOTAL
21	#	1	0	1	0	0
	%	0.9	0.0	0.8	0.0	0.0
25	#	2	0	2	0	0
	%	1.7	0.0	1.5	0.0	0.0
26	#	10	2	12	0	0
	%	8.5	12.5	9.0	0.0	0.0
27	#	17	6	23	0	0
	%	14.5	37.5	17.3	0.0	0.0
28	#	29	4	33	1	1
	%	24.8	25.0	24.8	25.0	25.0
29	#	19	0	19	0	0
	%	16.2	0.0	14.3	0.0	0.0
30-34	#	38	4	42	3	3
	%	32.5	25.0	31.6	75.0	75.0
40-49	#	1	0	1	0	0
	%	0.9	0.0	0.8	0.0	0.0
COLUMN TOTAL	#	117	16	133	4	4
	%	88.0	12.0	100.0	100.0	100.0

TABLE C-5

MINORITY CLASSIFICATION OF CHEMISTS AND CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND SEX

MINORITY CLASSIFICATION		BACHLORS MEN	BACHLORS WOMEN	BACHLORS ROW TOTAL	MASTERS MEN	MASTERS WOMEN	MASTERS ROW TOTAL	PHD MEN	PHD WOMEN	PHD ROW TOTAL
CHEMISTS										
BLACK	#	32	17	49	8	5	13	12	0	12
	%	1.7	2.2	1.9	3.5	6.3	4.2	3.6	0.0	3.0
AMERICAN INDIAN	#	2	1	3	0	1	1	1	0	1
	%	0.1	0.1	0.1	0.0	1.3	0.3	0.3	0.0	0.3
ASIAN	#	56	27	83	16	5	21	29	7	36
	%	3.0	3.6	3.1	6.9	6.3	6.8	8.6	11.9	9.1
HISPANIC	#	17	9	26	2	2	4	4	0	4
	%	0.9	1.2	1.0	0.9	2.5	1.3	1.2	0.0	1.0
NON- MINORITY	#	1773	706	2479	205	66	271	291	52	343
	%	94.3	92.9	93.9	88.7	83.5	87.4	86.4	88.1	86.6
COLUMN TOTAL	#	1880	760	2640	231	79	310	337	59	396
	%	71.2	28.8	100.0	74.5	25.5	100.0	85.1	14.9	100.0
CHEM ENGINEERS										
BLACK	#	9	7	16	1	0	1	1	0	1
	%	1.0	4.1	1.6	0.7	0.0	0.6	1.6	0.0	1.6
ASIAN	#	32	7	39	17	1	18	9	0	9
	%	3.7	4.1	3.8	11.5	6.7	11.0	14.5	0.0	14.3
HISPANIC	#	9	1	10	3	2	5	0	0	0
	%	1.0	0.6	1.0	2.0	13.3	3.1	0.0	0.0	0.0
NON- MINORITY	#	809	155	964	127	12	139	52	1	53
	%	94.2	91.2	93.7	85.8	80.0	85.3	83.9	100.0	84.1
COLUMN TOTAL	#	859	170	1029	148	15	163	62	1	63
	%	83.5	16.5	100.0	90.8	9.2	100.0	98.4	1.6	100.0

TABLE C-6

CITIZENSHIP OR VISA STATUS OF CHEMISTS AND CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND SEX

CITIZENSHIP OR VISA STATUS		BACHLORS MEN	BACHLORS WOMEN	BACHLORS ROW TOTAL	MASTERS MEN	MASTERS WOMEN	MASTERS ROW TOTAL	PHD MEN	PHD WOMEN	PHD ROW TOTAL
CHEMISTS										
U. S. CITIZEN	#	1877	754	2631	210	69	279	308	50	358
	%	98.1	97.8	98.0	88.6	85.2	87.7	88.5	84.7	88.0
RESIDENT VISA	#	20	13	33	11	1	12	17	5	22
	%	1.0	1.7	1.2	4.6	1.2	3.8	4.9	8.5	5.4
OTHER VISA	#	17	4	21	16	11	27	23	4	27
	%	0.9	0.5	0.8	6.8	13.6	8.5	6.6	6.8	6.6
COLUMN TOTAL	#	1914	771	2685	237	81	318	348	59	407
	%	71.3	28.7	100.0	74.5	25.5	100.0	85.5	14.5	100.0
CHEM ENGINEERS										
U. S. CITIZEN	#	848	168	1016	123	11	134	45	1	46
	%	97.0	96.6	96.9	81.5	73.3	80.7	70.3	100.0	70.8
RESIDENT VISA	#	13	4	17	8	2	10	10	0	10
	%	1.5	2.3	1.6	5.3	13.3	6.0	15.6	0.0	15.4
OTHER VISA	#	13	2	15	20	2	22	9	0	9
	%	1.5	1.1	1.4	13.2	13.3	13.3	14.1	0.0	13.8
COLUMN TOTAL	#	874	174	1048	151	15	166	64	1	65
	%	83.4	16.6	100.0	91.0	9.0	100.0	98.5	1.5	100.0

TABLE C-7

MINORITY CLASSIFICATION AND CITIZENSHIP OR VISA STATUS OF CHEMISTS

BY HIGHEST DEGREE EARNED

CITIZENSHIP OR VISA STATUS		MINORITY CLASSIFICATION: BLACK	AMERICAN INDIAN	ASIAN	HISPANIC	NON-MINORITY	ROW TOTAL
BACHLORS							
U. S. CITIZEN	#	43	3	65	22	2450	2583
	%	89.6	100.0	78.3	84.6	98.9	98.0
RESIDENT VISA		2	0	15	3	13	33
		4.2	0.0	18.1	11.5	0.5	1.3
OTHER VISA		3	0	3	1	13	20
		6.3	0.0	3.6	3.8	0.5	0.8
COLUMN TOTAL		48	3	83	26	2476	2636
		1.8	0.1	3.1	1.0	93.9	100.0
MASTERS							
U. S. CITIZEN	#	11	1	3	2	254	271
	%	84.6	100.0	14.3	50.0	93.7	87.4
RESIDENT VISA		1	0	5	1	5	12
		7.7	0.0	23.8	25.0	1.8	3.9
OTHER VISA		1	0	13	1	12	27
		7.7	0.0	61.9	25.0	4.4	8.7
COLUMN TOTAL		13	1	21	4	271	310
		4.2	0.3	6.8	1.3	87.4	100.0
PHD							
U. S. CITIZEN	#	11	1	7	4	323	346
	%	91.7	100.0	19.4	100.0	94.7	87.8
RESIDENT VISA		1	0	15	0	6	22
		8.3	0.0	41.7	0.0	1.8	5.6
OTHER VISA		0	0	14	0	12	26
		0.0	0.0	38.9	0.0	3.5	6.6
COLUMN TOTAL		12	1	36	4	341	394
		3.0	0.3	9.1	1.0	86.5	100.0

TABLE C-8

MINORITY CLASSIFICATION AND CITIZENSHIP OR VISA STATUS OF CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED

CITIZENSHIP OR VISA STATUS		MINORITY CLASSIFICATION: BLACK	ASIAN	HISPANIC	NON-MINORITY	ROW TOTAL
BACHLORS						
U. S. CITIZEN	#	13	27	7	949	996
	%	81.3	69.2	70.0	98.5	96.9
RESIDENT VISA		1	7	2	7	17
		6.3	17.9	20.0	0.7	1.7
OTHER VISA		2	5	1	7	15
		12.5	12.8	10.0	0.7	1.5
COLUMN TOTAL		16	39	10	963	1028
		1.6	3.8	1.0	93.7	100.0
MASTERS						
U. S. CITIZEN	#	0	3	2	126	131
	%	0.0	16.7	40.0	91.3	80.9
RESIDENT VISA		0	6	1	2	9
		0.0	33.3	20.0	1.4	5.6
OTHER VISA		1	9	2	10	22
		100.0	50.0	40.0	7.2	13.6
COLUMN TOTAL		1	18	5	138	162
		0.6	11.1	3.1	85.2	100.0
PHD						
U. S. CITIZEN	#	1	1	0	43	45
	%	100.0	11.1	0.0	81.1	71.4
RESIDENT VISA		0	7	0	3	10
		0.0	77.8	0.0	5.7	15.9
OTHER VISA		0	1	0	7	8
		0.0	11.1	0.0	13.2	12.7
COLUMN TOTAL		1	9	0	53	63
		1.6	14.3	0.0	84.1	100.0

APPENDIX

SCOPE AND METHOD OF SURVEY

OBJECTIVES OF SURVEY

The 1978 survey is the twenty-seventh in the series of starting salary surveys conducted by the American Chemical Society. A summary of the results appears in the October 23, 1978 issue of Chemical and Engineering News.

The primary objective of the survey is to determine the salaries and occupational status of the students who majored in chemistry and chemical engineering and who graduated during the 1977-1978 academic year. The survey covers the three degree levels: bachelor's, master's, and Ph.D. In addition, the survey provides information on minority participation, and citizenship status.

METHOD OF COLLECTION AND TIMING OF SURVEY

Chemistry and chemical engineering departments provided lists of names and addresses of graduates. The cooperating departments were the chemistry departments approved by the ACS, and the chemical engineering departments accredited by the American Institute of Chemical Engineers and the Engineer's Council for Professional Development.

During the summer of 1978, the Office of Manpower Studies mailed questionnaires to graduates who had U.S. addresses and graduation dates from September 1977 through June 1978. Summer graduates were excluded because most of them had twelve months experience by the time the survey was conducted.

EXTENT OF COVERAGE

Approximately 13,583 questionnaires were mailed to graduates of 533 chemistry and 105 chemical engineering departments. Most of the questionnaires were sent by bulk mail, but several hundred were sent first class. About 10% of those sent by first class mail were returned. Thus about 10% of the questionnaires apparently were undeliverable because the addresses were inadequate. By the mid-September cutoff date, the Office of Manpower Studies had received 4,746 responses, 4743 of them usable.

The Office of Manpower Studies estimates that U.S. colleges and universities granted about 21,000 chemistry and chemical engineering degrees during the year ending June 1978. No effort was made to examine the characteristics of the graduates from departments that did not participate in the survey or of those graduates who did not mail back completed questionnaires.

DEFINITIONS

The questionnaire appears in the appendix. Question H on post-graduation status was edited to eliminate multiple check marks and to reflect as accurately as possible the employment status of the respondent.

The term "inexperienced" as used in the tables refers to those who have 12 months or less of prior professional work experience. Salary tables are based only on salaries of those who found full-time employment in chemistry or chemical engineering. Postdoctoral salaries are analyzed separately. The discrepancies in the numbers of respondents in various tables reflect the use of incomplete questionnaires.

GEOGRAPHIC REGIONS

PACIFIC

- Washington
- Oregon
- California
- Alaska
- Hawaii

MOUNTAIN

- Montana
- Idaho
- Wyoming
- Nevada
- Utah
- Colorado
- Arizona
- New Mexico

WEST NORTH CENTRAL

- North Dakota
- Minnesota
- South Dakota
- Iowa
- Nebraska
- Kansas
- Missouri

WEST SOUTH CENTRAL

- Oklahoma
- Arkansas
- Texas
- Louisiana

EAST NORTH CENTRAL

- Wisconsin
- Michigan
- Illinois
- Indiana
- Ohio

EAST SOUTH CENTRAL

- Kentucky
- Tennessee
- Mississippi
- Alabama

MIDDLE ATLANTIC

- New York
- Pennsylvania
- New Jersey

SOUTH ATLANTIC

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

NEW ENGLAND

- Maine
- New Hampshire
- Vermont
- Massachusetts
- Connecticut
- Rhode Island

AMERICAN CHEMICAL SOCIETY

Starting Salary and Employment Status of 1978 Chemistry and Chemical Engineering Graduates

PLEASE DO NOT WRITE IN THIS SPACE

A. Sex: (1)___Male (2)___Female — A.___ (1)

B. Year of birth_____ — B.___ (2) ___ (3)

C. Highest degree received in 1977-78 academic year: (1)___Bachelors (2)___Masters (3)___Ph.D. — C.___ (4)

D. Field of highest degree:

(01)___Chemical engineering
(02)___Chemistry, general
(03)___Biochemistry
(04)___Agricultural/food chemistry
(05)___Analytical chemistry
(06)___Inorganic chemistry
(07)___Organic chemistry
(08)___Pharmaceutical/medicinal/clinical chemistry
(09)___Physical/theoretical chemistry
(10)___Polymer/macromolecular chemistry
(14)___Chemistry, other (specify)_____
(15)___Non-chemical (specify)_____

D.___ (5) ___ (6)

E. Citizenship or visa status: (1)___U.S. citizen (2)___U.S. permanent resident visa (3)___Other visa: (specify)_____ — E.___ (7)

F. Are you a member of any of the minority groups recognized by the Equal Employment Opportunity Commission listed below? ___Yes (5)___No

If "Yes," please check those which apply to you:
(1)___Black (not of Hispanic origin)
(2)___American Indian or Alaskan Native
(3)___Asian or Pacific Islander (those of Chinese, Japanese, Korean, Filipino, or subcontinental Indian origin)
(4)___Hispanic (those of Mexican, Puerto Rican, Cuban, or Spanish origin)

F.___ (8)

G. Post-graduation employment status:

Accepted or continued full-time employment (excluding summer employment):
(1)___in a field of chemistry or chemical engineering
(2)___in a field other than chemistry or chemical engineering

(3)___Accepted a graduate assistantship or a postdoctoral or other fellowship
(4)___Entered military service, Peace Corps, VISTA, PHS, or other similar service

G.___ (9)

Not employed (or employed part-time or for the summer):
(5)___and seeking full-time employment
(6)___and not seeking full-time employment

H. Do you plan further advanced studies in fall 1978? (1)___Yes, full-time (2)___Yes, part-time (3)___No — H.___ (10)

a. If "Yes," please specify field:

(01)___Chemistry
(02)___Other physical science, math.
(03)___Chemical engineering
(04)___Other engineering
(05)___Biochemistry
(06)___Other life science
(07)___Medicine
(08)___Dentistry
(09)___Pharmacy, pharmacology
(10)___Business, management
(11)___Law
(12)___Social science, humanities
(13)___Other (specify)_____

Ha.___ (11) ___ (12)

IF YOU HAVE FULL-TIME EMPLOYMENT OR A POSTDOCTORAL POSITION, PLEASE ANSWER THE REMAINING QUESTIONS

I. Annual starting salary: $_____ — I.___ (13) ___ (14) ___ (15) ___ (16)

J. Technical work experience prior to graduation: (1)___less than 12 months (or none) (2)___12 months or more — J.___ (18)

K. Employer classification (check the one category which best describes your employer):

Private industry or business:
(01)___manufacturing
(02)___non-manufacturing (e.g. mining, utilities, construction, etc.)
(03)___College or university
(04)___High school or other school
(05)___Federal government (civilians only)
(06)___State or local government
(08)___Hospital or independent laboratory
(09)___Other non-profit org. or research institute
(10)___Other (specify)_____

K.___ (19) ___ (20)

L. Geographic location of employment: State_____ — L.___ (21) ___ (22)

M. How many firm offers of employment did you receive in a field of chemistry or chemical engineering? Specify number_____ — M.___ (23) ___ (24)

Certification___ (25)

Please return within 10 days to the American Chemical Society
1155 Sixteenth St. N.W., Washington, D.C. 20036
Thank you

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RELATED ACS PUBLICATIONS

1978 Report of Chemists' Salaries and Employment Status

Survey report covering salaries and incomes; employment status and length of unemployment; characteristics of respondents including minority and postdoctoral information. Detailed tables contain salaries and incomes of chemists and chemical engineers by sex, employer, work function, specialty, number of subordinates, and geographic region; salaries of industrially employed chemists and chemists in academia.

141 pages. (1978) $10.00

Professionals in Chemistry 1977

A comprehensive statistical report containing a wealth of employment and educational data. Covers the profession --characteristics, minorities, postdoctoral fellows; employment; salaries; education; supply and demand. Of particular interest to industrial managers and personnel specialists, academic administrators and faculty members, career counselors, and young men and women contemplating --or preparing for--a career in chemistry.

108 pages. (1978) $20.00

Professionals in Chemistry 1974-77

A complete set of *Professionals in Chemistry* includes four issues:

Professionals in Chemistry 1977 as described above.
Professionals in Chemistry 1976 containing a special detailed report of employment in the chemical industry.
Professionals in Chemistry 1975 containing a special report on salaries of women chemists and chemists' salaries compared with those of other professions.
Professionals in Chemistry 1974 containing a detailed study of the growth of the profession.

(1978, 1977, 1976, 1975) $40.00/set