2008 Salaries Survey

Analysis of the American Chemical Society's 2008 Comprehensive Salary and Employment Status Survey

American Chemical Society
Committee on Economic and Professional Affairs

Salaries 2008

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

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Contents

Acknowledgements

This report presents detailed results of the 2008 ACS Comprehensive Salary and Employment Status Survey. The ACS Committee on Economic and Professional Affairs and its Subcommittee on Surveys planned and provided general oversight of the survey and its analysis. The committee extends its heartfelt appreciation to those who agreed to participate in this survey. The committee would also like to extend its appreciation to the development team. Jeffrey Allum, research manager, and Gareth Edwards, research associate in ACS's Department of Member Research and Technology led the survey design process and produced the detailed tables. Paul Nentwig and his team at Intelliscan, Inc. performed the data collection. Michelle Peters was invaluable in her role as analyst and author of this report. Blake Stenning of Pittny Creative designed the report. Eric Stewart provided copyediting services.

Jeffrey Allum, Ed.D.
Department of Member Research
and Technology

Summary and Comments

Results from the 2008 ACS Comprehensive Salary and Employment Status Survey indicate that salaries for chemists have increased 4.5% from last year. In 2008, reported salaries for chemists with bachelor's degrees increased at a rate greater than inflation. Chemists reported earning, on average, an additional $8,000 from consulting and $9,000 from company bonuses, along with experiencing a 10.5% increase in receipt of stock options. At 3.6%, unemployment rates reached an all-time high in 2004, and have been gradually decreasing since. Over the past year, chemists experienced a small decrease in unemployment (from 2.4% to 2.3%). Additionally, 86.9% of chemists surveyed reported being employed in full-time positions (0.5% decrease), while 3.6% claimed to be working part-time (0.2% increase) and 1.2% claimed to be working in postdoctorate positions (0.4% decrease).

ALL CHEMISTS

In 2008, the median salary for all chemists responding to the ACS 2008 membership survey was $93,000. To provide some context, from 2006 to 2007, median salaries reported a 2.8% increase; over the past year, in comparison, the overall chemist's salary experienced a 4.5% increase. However, inflation too, has increased from 2.8% to 4.0%, indicating that the overall buying power of chemists has only slightly increased (.5% increase after adjusting for inflation).

Table 1 displays the differences in the 2008 reported median salaries by degree level. From 2007 to 2008, the master's and doctorate salaries increased by 2.5%. The median master's salary increased from $80,000 to $82,000, while the median doctorate salary increased from $98,500 to $101,000. After adjusting for inflation, however, both correspond to a decrease in purchasing power of 1.5%. Although the median bachelor's salary experienced the greatest increase compared to the preceding year ($68,000 to $72,600), this only represented a 2.8% increase after adjusting for inflation.

TABLE 1. CHANGE IN ALL CHEMISTS' SALARIES, 2007–2008

Degree	Median Salary 2008 (2007)		% Change from 2007 In Current Dollars	% Change from 2007 In Constant Dollars (4.0% rate of inflation)
Total	$93,000	(89,000)	up 4.5	up 0.5
Bachelor's	$72,600	(68,000)	up 6.8	up 2.8
Master's	$82,000	(80,000)	up 2.5	down 1.5
Doctorate	$101,000	(98,500)	up 2.5	down 1.5

INDUSTRIAL/PRIVATE SECTOR CHEMISTS

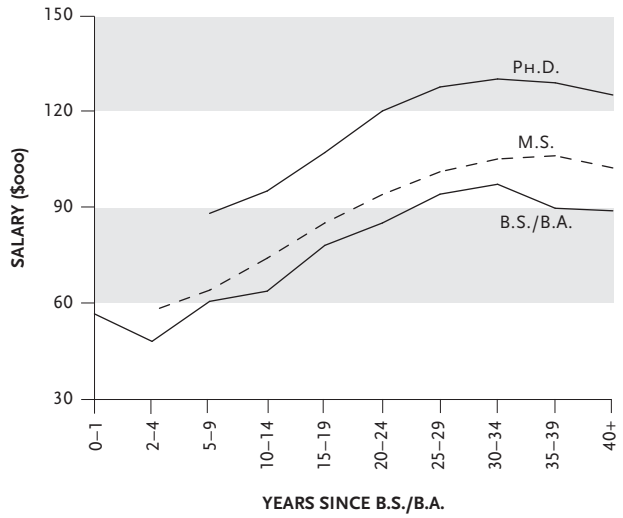
In addition to degree level, sector of employment was a major factor in determining chemists' salaries. Chemists working in the private sector typically reported earning higher salaries than those working in other areas of employment, such as academia. Table 2 displays the reported median salaries by degree level for 2007 and 2008 of industrial/private sector chemists. For all degree levels, salaries increased between $2,900 and $5,000. This increase had the greatest impact (in current dollars) for bachelor's (7.1% increase) and doctorate recipients (4.5% increase) and the smallest for master's recipients (3.3% increase). Except for master's recipients, the industrial salaries exceeded the rate of inflation.

TABLE 2. CHANGE IN INDUSTRIAL/PRIVATE SECTOR CHEMISTS' SALARIES, 2007–2008

		% Change from 2007	
Degree	Median Salary 2008 (2007)	In Current Dollars	In Constant Dollars (4.0% rate of inflation)
Bachelor's	$75,000 (70,000)	up 7.1	up 3.1
Master's	$90,000 (87,100)	up 3.3	down 0.7
Doctorate	$115,000 (110,000)	up 4.5	up 0.5

Another important factor influencing chemist salaries was length of experience. Figure 1 displays chemists' salaries by degree level and length of experience. This graph shows that, for the most part, as the number of years since earning a bachelor's degree increases, so does the average salary. A similar pattern can be seen for all degree levels. Master's recipients

FIGURE 1. 2008 INDUSTRIAL CHEMISTS' SALARIES BY YEARS SINCE B.S./B.A. AND BY HIGHEST DEGREE



reported salaries slightly higher than those earned by bachelors (from 5.8% to 19.8% higher), while the reported doctorate salaries were substantially higher than master's salaries (from 21.5% to 37.5% higher). However, after 35 years, salaries at all degree levels appeared to stabilize, or even decline.

ACADEMIC CHEMISTS

How do the salaries of academic employees compare to those in the private sector? Table 3 displays the median salaries of Ph.D. chemists working in academia by faculty rank and length of contract. Although chemists in the private sector tend to report earning higher salaries than those in academia, the overall salary picture of academia is much more complex. Given the breakdown of academia into ranks and lengths of contracts, it could be problematic to compare salary increases between the private sector and academia. Compared to 2007 salaries, all ranks/contract lengths reported salary increases, except for associate professors on 9–10 month contracts.

TABLE 3. CHANGE IN PH.D. ACADEMIC CHEMISTS' SALARIES, 2007–2008

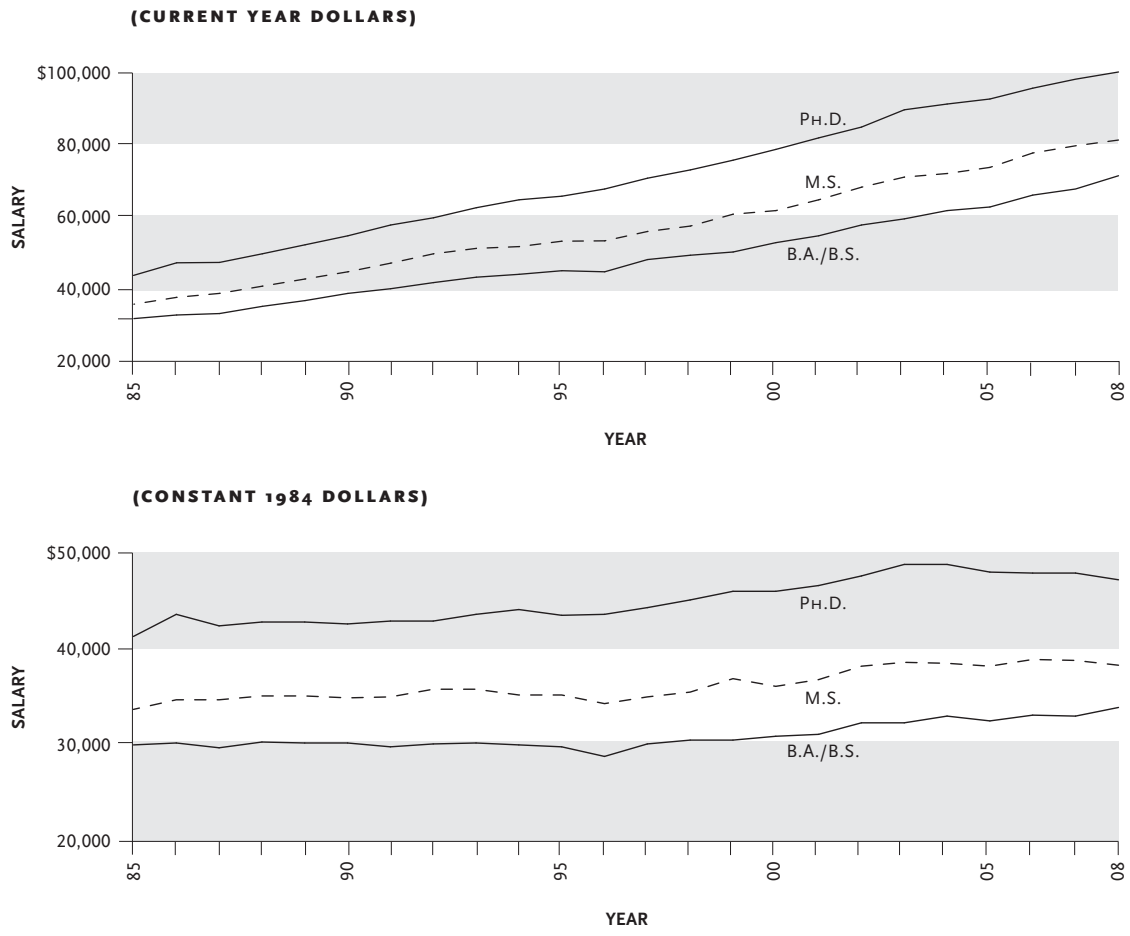
Rank/ Contract	Median Salary 2008 (2007)	% Change from 2007 In Current Dollars	% Change from 2007 In Constant Dollars (4.0% rate of inflation)
Full 9/10	$92,000 (89,000)	up 3.4	down 0.6
Full 11/12	$126,000 (119,200)	up 5.7	up 1.7
Assoc 9/10	$64,120 (65,000)	down 1.4	down 5.4
Assoc 11/12	$85,085 (76,800)	up 10.8	up 6.8
Asst 9/10	$57,000 (53,000)	up 7.5	up 3.5
Asst 11/12	$72,000 (65,000)	up 10.8	up 6.8

A positive correlation existed between rank/contract length and salaries. The higher the professor's rank coupled with the longer contract period, the greater the reported salaries. Assistant professors on a 9–10 month salary base reported increases of 7.5%, while those on 11–12 month contracts reported even greater increases of 10.8%. On the other hand, over the past year, associate professors at the 9–10 month level experienced a 1.4% decrease in salary (from $65,000 to $64,120), while their 11–12 month counterparts reported a 10.8% increase (from $76,800 to $85,085). For the most part, chemists with full professorships experienced the smallest salary increases. Full professors on a 9–10 month salary base reported increases of only 3.4%, while those on 11–12 month contracts reported increases of 5.7%. Except for full (0.6% decrease) and associate professors (5.4% decrease) employed on 9–10 month contracts, academics experienced salary increases greater than inflation.

OTHER FACTORS INFLUENCING SALARY

Although the level of degree, employment sector, and length of experience may very well be the most influential correlates of salary, there are a variety of other factors (and in some cases, combinations of factors) that one should also consider. The Appendix provides tables that offer comprehensive breakdowns of the current base salary ranges for chemists by amount of experience within each degree level and employment sector (Appendix Tables 1.1.1 to 1.1.3).

FIGURE 2. CHEMISTS' MEDIAN SALARIES IN CURRENT AND CONSTANT DOLLARS



The Appendix also provides tables that compare salaries by the type of work performed. Appendix Table 2.3.2 shows that private sector chemists with master's degrees who work as managers earn substantially more ($114,114) than those performing analytical services ($81,000). Similar tables are also available for other levels of degree and employment sectors. The data found in the various tables in the Appendix can be very helpful when assessing one's present salary.

TRENDS IN CHEMISTS' SALARIES

The median salaries of chemists have reliably increased every year since 1985, when ACS began measuring. Figure 2 displays the trend in chemists' salaries each year by level of degree. The upper graph in the figure shows these increases in chemists' salary in current dollars (i.e., the amount actually reported at the time of the study). Over the last two decades, chemists' salaries by this measure have more than doubled.

Additionally, it appears that as chemists' educational levels increase, so do the salary differences between degree levels. In 1985, the salary difference between a B.S. and M.S. recipient was $4,000, compared to a difference of $8,000 between an M.S. and Ph.D. recipient. By 1990, the salary differences between B.S. and M.S. recipients had increased by 50% (from $4,000 to $6,000) and by 25% between M.S. and Ph.D. recipients (from $8,000 to $10,000). A decade later, there was a reported $8,900 salary difference between B.S. and M.S. (48.3% increase) and a $17,000 difference between M.S. and Ph.D. (70% increase). Although the differences in salaries appear to have stabilized over the past decade, the trend appears to have continued in 2008, with a reported $9,400 difference in salary between B.S. and M.S. and a $19,000 difference between M.S. and Ph.D.

On the other hand, the lower portion of the figure displays chemists' median salaries in constant 1984 dollars (i.e., salaries accounting for inflation). These findings indicate that for the most part, chemists' salaries have remained fairly constant, or slightly above inflation. Between 2006 and 2007, salaries of chemists at all degree levels decreased by a median of 0.2% after inflation. Between 2007 and 2008, in contrast, salaries of chemists at all degree levels increased by a median of 0.5% after inflation. Looking at the 2007-08 data more closely, holders of bachelor's degrees as a whole saw median salary increases of 2.8% after inflation, while master's and Ph.D. holders saw decreases of 1.5% after inflation.

Non-Salary Income

Given that salaries alone do not provide the total picture of the earning potential of chemists, this section of the survey examines the additional income, such as consulting, bonuses, and company stock options received by chemists in 2007. While some chemists may seek to earn additional money by engaging in consulting work outside of their primary employment, there were substantial numbers of employers providing yearly bonuses and/or company stock options in order to supplement chemists' salaries.

CONSULTING

Overall, 10.1% of chemists surveyed reported earning some income from consulting in 2007, earning on the average an additional $8,000. For those academics who may not be paid or work during the summer, consulting work provides an opportunity for them to earn additional income. Almost 23% of chemists employed by colleges and universities reported doing some consulting in 2007. Last year, academic consultants on average reported charging $125 per hour and earning $3,500. Although chemists in academia reported the greatest percentage who were consulting, private sector employees reported receiving the largest income. In 2007, manufacturing chemists typically charged $120 per hour and earned $10,000 doing consulting work, while non-manufacturing chemists earned on average $52,000, at $145 per hour.

In addition to employment sector, level of degree, age, and sex also appeared to be factors in determining hourly consulting rates. The higher the degree level, the more chemists charged per hour for their services. Those with a bachelor's degree charged a median rate of $99 per hour, while master's recipients charged $100, and Ph.D.s $150 per hour. In addition to charging more, Ph.D.s were also more than twice as likely than holders of B.S. and M.S. degrees to do consulting work (12.8%). Also associated with hourly rates was a chemist's age. As age increased, so did the hourly consulting rate. On average, chemists in their twenties (2.9%) charged only $41 per hour, compared to those over age 50 (28.4%) who charged $150 per hour. These results may not only be attributable to years of experience, but also to degree level.

TABLE 4. CONSULTING DONE IN 2007

	% Who Consult	Median Hourly Rate	Median Income
All chemists	10.1	$125	$8,000
Degree			
B.S.	4.1	$99	$35,000
M.S.	6.0	$100	$15,000
Ph.D.	12.8	$150	$6,000
Employer			
Industry–mfg.	3.6	$120	$10,000
Industry–non mfg.	8.9	$145	$52,000
Government	5.2	$75	$7,400
College or univ.	22.9	$125	$3,500
Sex			
Men	11.2	$144	$10,000
Women	6.9	$95	$4,000
Age			
20–29	2.9	$41	$24,000
30–39	6.2	$100	$2,800
40–49	8.7	$120	$6,500
50–59	12.3	$150	$10,000
60–69	16.1	$150	$14,800

Note: 2008 survey respondents were asked to report on income they received from consulting during 2007.

In terms of sex, men were more likely to do consulting and charge higher hourly rates. Approximately 11% of men ($144 per hour) reported doing consulting work, compared to 6.9% of women ($95 per hour).

BONUSES

In 2007, 52.9% of all chemists reported being eligible to receive a bonus. However, not all employees eligible for bonuses received them. Of those eligible, 93.0% received bonuses with a median value of $9,000. Degree level, sector of employment, age, and sex all appeared to be factors in determining bonus amounts.

Compared to master's and Ph.D.s, bachelor's recipients were more likely to be eligible for bonuses (64.1%) and more likely to receive them (93.7%). On average, the bonus amount for bachelor's recipients was $5,000. A smaller percentage (59.9%) of master's recipients were eligible for bonuses last year. Of those eligible, 93.3% received bonuses and earned on average an additional $7,000. While the Ph.D.s reported the smallest level of bonus eligibility (47.9%) and receipt (92.6%), they also claimed to be awarded the largest amounts (a median of $11,788). In terms of employment sector, college and university chemists were also less likely to be eligible for (11.2%) and to receive (78.7%) bonuses.

Compared to the private sector, government employees were also less likely to be eligible for bonuses. In 2007, 42.2% of government employees reported being eligible to receive a bonus. Of those who received a bonus (91.3%), the average bonus amount was only about $2,000. In the private sector, bonuses are typically offered as not only a way for employers to motivate their employees, but also as a means to remain competitive with the benefits offered by other companies. The greatest levels of bonus eligibility (78.6%), receipt (95.1%), and bonus award ($10,500) were reported by those working in manufacturing. In comparison, non-manufacturing industries were not as generous; their bonus eligibility rate (65.0%), receipt (88.9%), and average amounts ($7,500) awarded to their chemists were lower.

Age was another factor that appeared to influence bonuses. As the chemist's age

TABLE 5. BONUSES RECEIVED IN 2007

	% Eligible	% of Eligible Received	Median Bonus
All chemists	52.9	93.0	$9,000
Degree			
B.S.	64.1	93.7	$5,000
M.S.	59.9	93.3	$7,000
Ph.D.	47.9	92.6	$11,788
Employer			
Industry–mfg.	78.6	95.1	$10,500
Industry–non mfg.	65.0	88.9	$7,500
Government	42.2	91.3	$2,000
College or univ.	11.2	78.7	$3,000
Sex			
Men	55.4	93.0	$10,000
Women	46.3	93.1	$6,000
Age			
20–29	51.2	92.9	$2,975
30–39	52.0	93.0	$6,050
40–49	58.1	94.3	$10,000
50–59	56.2	93.1	$12,000
60–69	38.2	88.9	$9,914

Note: 2008 survey respondents were asked to report on income they received from bonuses during 2007.

or number of years experience increased, so did the amount of the bonus awarded (in general). Those chemists in their twenties reported a 51.2% eligibility and typically earned a bonus of $2,975. The largest increase in bonus amount was between chemists in their thirties and forties ($3,950). Chemists in their fifties reported on average earning $12,000 in bonuses, but after age 59, fewer chemists were eligible for bonuses (38.2%) and their awarded amounts of bonuses decreased ($9,914).

Men typically reported having a higher eligibility rate and receiving greater award amounts than women. In general, male chemists' eligibility rates were 9.1% higher, and they received approximately 67.0% more in bonus amounts ($10,000). Female chemists, on average, had an eligibility rate of 46.3% and were awarded bonus amounts of $6,000. These results may be attributable to the under-representation of women in areas that seem to have the greatest impact on compensation, such as degree level (women represented 22.6% of all Ph.D.s) and employment sector (23.0% of all private sector chemists).

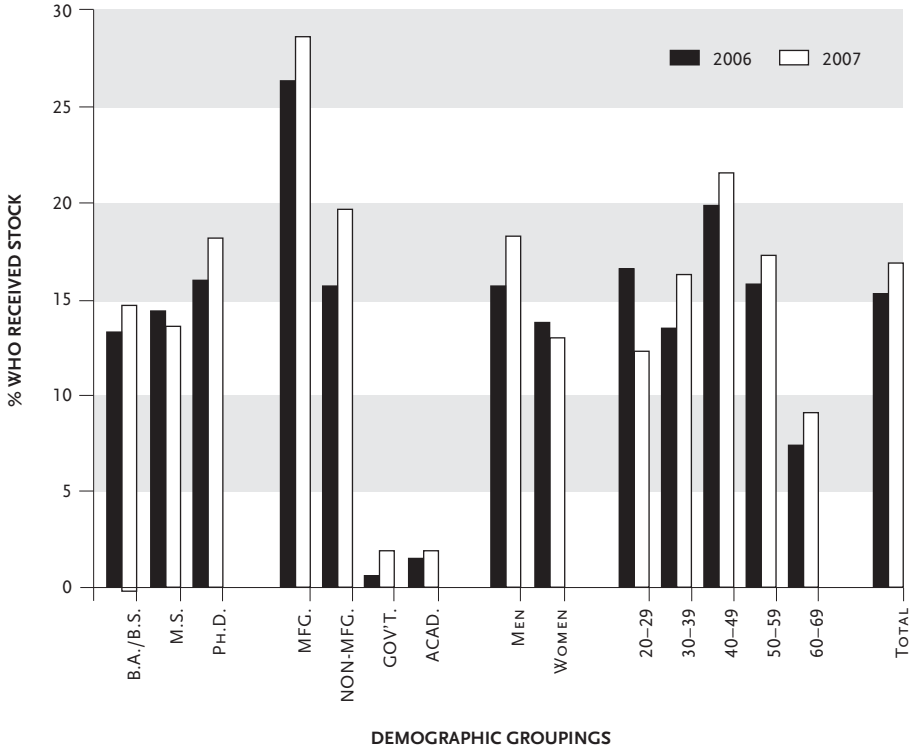
STOCK AS PART OF PROFESSIONAL INCOME

Another way for employers to compensate their employees is by offering them company stock. Since the 2001 survey, when ACS began asking members to report on stock options, the percentage of chemists reporting this type of compensation has experienced periods of increases and decreases: 2002 (17.1%), 2003 (16.5%), 2004 (15.3%), 2005 (15.2%), and 2006 (16.1%). Although from 2006 to 2007, 0.8% fewer employees received stock, between 2007 and 2008, the percentage actually climbed by 1.6% (from 15.3% to 16.9%).

Figure 3 displays the percentage of chemists who received stock options in 2007 and 2008 by degree level, sector of employment, age, and sex. Compared to last year, more chemists reported receiving stock options in almost every sub-category. Degree level had an influence on those receiving stock options: the higher the degree level, the greater the percentage. Doctorate recipients (18.2%) were more likely to receive stock as part of their overall compensation compared to holders of bachelor's (14.9%) and master's (13.6%) degrees. Those chemists working in the private sector reported higher percentages of stock receipt (48.4%) than those in government (1.9%) or academia (1.9%). Within the private sector, the greatest percentages of chemists receiving stocks were in manufacturing (28.7%), compared to non-manufacturing (19.7%).

In addition to level of degree and sector of employment, age and sex were also important factors in determining the receipt of stock options. Chemists in their twenties experienced a 4.3% decrease (from 16.6% to 12.3%) from last year, while those in their sixties reported the largest increase of 1.7% (7.4% to 9.1%). In 2008, chemists in their forties reported receiving the largest percentage of stock options (21.8%). Men reported receiving a greater proportion (18.3%) than women (13.0%). Compared to the previous year, men experienced a 2.6% increase, while women reported a 0.8% decrease. Once again, these findings may result from the shortage of female chemists possessing Ph.D.s and/or working in the private sector.

FIGURE 3. RECEIPT OF STOCK AS PART OF PROFESSIONAL INCOME FOR CHEMISTS: 2006 & 2007



Note: 2008 survey respondents were asked to report on income they received as stock during 2007.

Employment and Unemployment

EMPLOYMENT STATUS

Over the past decade, full-time employment status appears to be fairly stable. Table 6 displays the employment status of chemists per year. In 2008, 86.9% of chemists surveyed reported being employed in full-time positions, while 3.6% claimed to be working part time. Compared to last year, these percentages represent a 0.5% decrease for full-time employees and a 0.2% increase for part-time employees. Given that overall unemployment decreased by 0.1%, the decrease in full-time positions may be more attributable to the increase of those chemists choosing to work part-time instead. The percentage of part-time employees has steadily increased over the past 10 years. In 1997, only 2.1% of employees reported working part time, while there was a reported 3.4% in 2007. From 1995 to 2005, the percentage of chemists employed in postdoctorate positions reported a 1.6% decrease (from 3.5% to 1.9%). In 2006, these percentages increased by 0.3% (1.9% to 2.2%), but have experienced decreases since. In 2008, only 1.2% of chemists claimed to be working in postdoctorate positions (a decrease of 0.4% from 2007). Approximately 6.1% of chemists surveyed were outside of the labor force either through retirement or by choosing not to seek work.

TABLE 6. EMPLOYMENT STATUS OF CHEMISTS (PERCENTAGES BY YEAR)

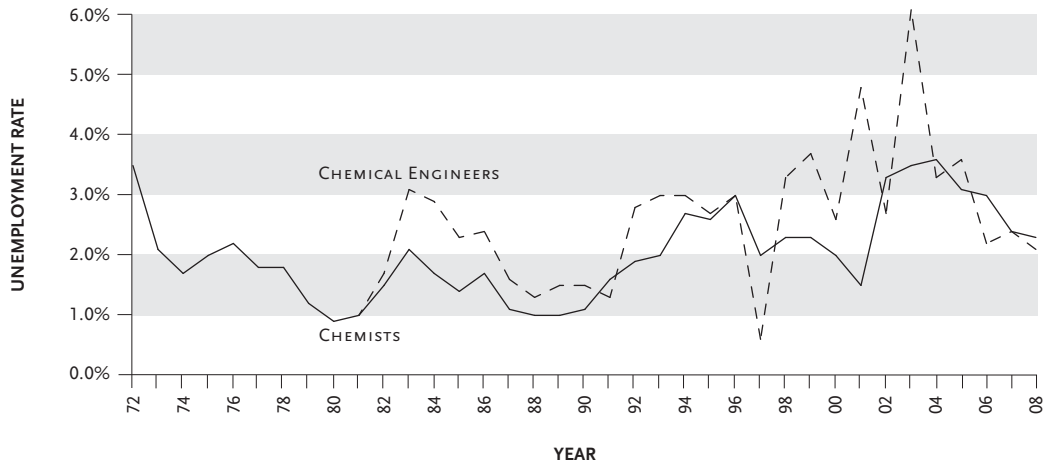
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Full Time	88.8	89.4	90.5	89.8	89.4	88.7	91.8	88.3	87.9	86.7	86.0	86.9	87.4	86.9
Part Time	2.7	2.7	2.1	2.4	2.6	2.9	2.4	2.8	2.9	3.4	3.9	3.3	3.4	3.6
Post Doc	3.5	2.7	2.3	2.2	2.0	2.0	1.3	1.4	1.3	1.8	1.9	2.2	1.6	1.2
Not Employed														
Seeking	2.5	2.9	1.9	2.3	2.2	2.9	1.5	3.1	3.3	3.4	2.9	2.9	2.3	2.2
Not Seeking	2.6	2.3	0.8	0.9	1.3	1.7	1.4	1.5	1.7	1.4	1.9	1.7	1.7	1.5
Fully Retired*			2.3	2.4	2.5	2.8	1.6	2.8	2.9	3.2	3.4	2.7	3.6	4.6
Overall Unemployment Rate**	2.6	3.0	2.0	2.3	2.3	2.0	1.5	3.3	3.5	3.6	3.1	3.0	2.4	2.3

* A survey question regarding retirement status was added in 1997.
** Unemployment rate measures a status of the active workforce. Thus, "not seeking" and "fully retired" populations are dropped from the calculation of the unemployment rate.

UNEMPLOYMENT TRENDS

Aside from salaries, trends in unemployment rates can be used as an additional method to assess the workforce for chemical scientists. Figure 4 displays annual unemployment rates for chemists and chemical engineers in the workforce who were seeking employment. In the past decade, unemployment rates reached all-time highs in 2004 for chemists (3.6%) and in 2003 for chemical engineers (6.1%). These rates have been gradually decreasing ever since. In 2007, 2.4% of chemists and 2.4% of chemical engineers were seeking work. Compared to last year, chemists experienced a 0.1% decrease in unemployment, while there was a 0.3% decrease for chemical engineers. Given that respondents to the survey were primarily chemists (86.7%), the reliability of the findings regarding chemical engineers may be questionable.

FIGURE 4. UNEMPLOYMENT RATES FOR CHEMISTS AND CHEMICAL ENGINEERS, 1972–2008



PROFESSIONAL GLOBALIZATION

Are chemical scientists collaborating with colleagues overseas? In the past three years, 25.2% attended or participated in professional or association meetings outside of the U.S., 2.4% of respondents resided abroad for work, and 0.6% resided abroad to study. Over the past two years, 31.7% claimed to have traveled outside of the U.S. for work-related purposes. Of those respondents, traveling to work with individuals from other countries involved sharing data or information (24%), jointly developing or designing a product, process, or program (14.1%), and/or collaborating on a research project (13.9%). As a part of performing their principal job, 44.4% of the respondents reported working with individuals located in other countries. Although 54.4% stated being prepared professionally to move overseas for work-related purposes, a significant amount (79.1%) claimed that it was very unlikely that they would live or work outside of the U.S. within the next year.

Technical Notes

THE SAMPLE

The target population of the 2008 ACS Comprehensive Salary and Employment Status Survey was ACS regular members under the age of 70 who had U.S. mailing addresses and had neither student, retired, nor emeritus membership status. This year, a general sample was drawn from a database consisting of all members meeting the above criteria. In February 2008, an "early bird" announcement was e-mailed to all those in the sample with valid e-mail addresses, inviting them to complete the online membership survey. Next, a pre-notification postcard, containing a Web address for the online survey, was mailed to 20,753 members, notifying them that they would soon be mailed a paper version of the survey. The printed survey questionnaires, along with the Web directions, were mailed to members by first-class mail in early March. A third contact consisted of a reminder postcard mailed about a week after the first printed mailing; a fourth was an e-mail reminder of the online survey; and a fifth was another mailing of the paper survey. Ultimately, 7,400 useable surveys (49.8% paper, 50.2% electronic) were received, for a response rate of 35.7% percent.

DEFINITIONS

For the purposes of the survey analysis, the following definitions were used:

Chemist: A respondent who indicated a work specialty of chemistry or biochemistry (categories 2 through 16 of Part 1, Question 3 of the questionnaire) or, if a non-chemistry work specialty (categories 17 through 20 of the same question), a degree field of chemistry or biochemistry.

Chemical Engineer: A respondent who indicated a work specialty of chemical engineering (category 1 of Part 1, Question 3 of the questionnaire).

Nonchemist: A respondent whose work specialty category was other than chemistry or chemical engineering, or if non-chemistry work specialty, no degree field of chemistry or biochemistry.

Academic: Pertaining to a Ph.D. working in a college or university, i.e., a private or public institution that awards a degree of associate or higher.

Unemployed: A respondent who was not employed and was seeking employment (category 4 of Part 1, Question 4 of the questionnaire). The unemployment rate was calculated to compare with the national rate by dropping those "not seeking" or "fully retired" from the labor force.

Respondents indicated their employment status, base annual salaries, and ages as of March 1, 2008. Each respondent's place of employment (current or most recent) determines his or her geographic region. The listing of states by geographic regions follows this section.

DISCREPANCIES AMONG TABLES

Some pairs of tables contain totals that should be identical but are not. For example, two tables that represent information about Ph.D. respondents should show the same total number of Ph.D.s, but for various reason may not. Missing response items in a survey generally causes this phenomenon. Not every respondent answers all questions all of the time. To illustrate, if one table groups the Ph.D.s according to specialty and another groups them according to work function, the totals will differ unless the number who did not indicate their specialty is the same number as those who did not indicate their work function.

List of Abbreviations Used in Tables

	Abbreviation	Degree
DEGREES	B.A.	Bachelor of Arts
	B.S.	Bachelor of Science or all bachelor's degrees
	M.S.	Master of Sciences
	Ph.D.	Doctor of Philosophy
FIELDS OF DEGREE AND WORK SPECIALTIES	Chem eng	Chemical engineering
	Ag chem	Agricultural/food chemistry
	Analyt chem	Analytical chemistry
	Biochem	Biochemistry
	Biotech	Biotechnology
	Chem ed	Chemical education
	Clinical chem	Clinical chemistry
	Environ chem	Environmental chemistry
	Gen chem	General chemistry
	Inorg chem	Inorganic chemistry
	Material sci	Materials science
	Med/pharma	Medicinal/pharmaceutical chemistry
	Organic chem	Organic chemistry
	Physical chem	Physical chemistry
	Polymer chem	Polymer chemistry
	Other chem	Other chemical sciences
	Bus admin	Business administration
	Computer sci	Computer science
	Othr non-chem	Other non-chemistry

	Abbreviation	Region
REGIONS	Pacific	Pacific
	Mountain	Mountain
	WN Central	West North Central
	WS Central	West South Central
	EN Central	East North Central
	ES Central	East South Central
	Mid-Atlantic	Middle Atlantic
	So-Atlantic	South Atlantic
	New England	New England

EMPLOYERS

Abbreviation	Employer
Mfg	**Manufacturing**
Aero/auto	Aerospace/auto/transportation
Ag chem	Agricultural chemicals
Basic chem	Basic commodity chemicals
Biochem prods	Biochemical products
Building mats	Building materials
Coating/ink	Coatings/ink/paints
Electronics	Electronics/computers/semiconductors
Food	—
Instruments	—
Med products	Medical devices/diagnostic products
Metals	Metals/minerals
Paper	—
Personal care	—
Petroleum	Petroleum/natural gas
Pharma prods	Pharmaceutical products
Plastics	—
Rubber	—
Soaps	Soaps/detergents/surfactants
Spec chem	Specialty/fine chemicals
Textiles	—
Othr mfg	Other manufacturing
Non-mfg	**Non-manufacturing**
Analyt lab	Analytical service/testing laboratory
Biotech resrch	Biotech research firm
Indep research	Independent or contract research firm
Hospital lab	Hospital or clinical laboratory
Non-profit	Non-profit organization
Private utility	Private utility company
Profl services	Professional services-scientific/engineering/law
Research inst	Research institution
Science temp	Scientific temporary or personnel agency
Othr non-mfg	Other non-manufacturing
Government	—
Federal	Federal (civilian)
Military	—
State or local	—
Othr govmt	Other government
Self-employed	—

WORK FUNCTIONS

Abbreviation	Employer
Analyt svcs	Analytical services, other than forensics
Chem info	Chemical information services
Computer	Computer programming, analysis, design
Consulting	—
Forensic	Forensic analysis
Gen mgmt	General management or administration, other than R&D
Health/safety	Health and safety/regulatory affairs
Marketing	Marketing, sales, purchasing, technical service, economic evaluation
Patents	Patents, licensing, trademarks
Production QC	Production, quality control
R&D-applied	R&D-applied research, development, design
R&D-basic	R&D-basic research
R&D-mgmt	R&D-management or administration of R&D
Training	Training or teaching
Other	—

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

List of Tables

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