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https://chemidp.acs.org

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THIS ACS WEBINAR IS WILL BEGIN SHORTLY... SAY HELLO IN THE QUESTIONS WINDOW!
How Much Did American Chemists Make in 2021?
Analyzing the Data from the 2021 ACS Salary Survey

Presentation slides are available now! The edited recording will be made available as soon as possible.
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Survey Methodology

- An online survey was conducted
  May 10 to June 23, 2021
- The survey was emailed by ACS to ACS members
  - Sent: 122,439
  - Response: 7,138 (5.83%)
- The survey sample was defined by:
  - ACS Members Worldwide
  - Excluded age 70+
  - Excluded emeritus and retired
  - Pulled from Netforum membership file dated May 1, 2021
- Incentive: 100 $50 Amazon gift cards

Survey Methodology Details:

<table>
<thead>
<tr>
<th>Category</th>
<th>Survey</th>
<th>%</th>
<th>Sample File %*</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. members</td>
<td>5,488</td>
<td>76.9%</td>
<td>75.2%</td>
</tr>
<tr>
<td>Non-U.S.</td>
<td>1,650</td>
<td>23.1%</td>
<td>24.8%</td>
</tr>
<tr>
<td>Male</td>
<td>4,246</td>
<td>59.5%</td>
<td>63%</td>
</tr>
<tr>
<td>Female</td>
<td>2,663</td>
<td>37.3%</td>
<td>36.7%</td>
</tr>
<tr>
<td>Age &lt;25</td>
<td>528</td>
<td>7.4%</td>
<td>14.2%</td>
</tr>
<tr>
<td>25-34</td>
<td>1,563</td>
<td>21.9%</td>
<td>20.2%</td>
</tr>
<tr>
<td>35-44</td>
<td>1,536</td>
<td>21.5%</td>
<td>17.5%</td>
</tr>
<tr>
<td>45-54</td>
<td>1,381</td>
<td>19.3%</td>
<td>19.8%</td>
</tr>
<tr>
<td>55-69</td>
<td>1,810</td>
<td>25.4%</td>
<td>28.2%</td>
</tr>
</tbody>
</table>

* based on available data by gender, age, etc.
gender: 29,867 missing | age: 41,874 missing
Education: Highest Degree

- Six-in-ten ACS members have a Ph.D.
- Males and those age 35 - 54, are more likely to have attained a doctorate than their counterparts.
- Women and younger members are more likely to have a Bachelor’s degree to date.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td>&lt;25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n=2048)</td>
</tr>
<tr>
<td>Associate’s or less</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>14%</td>
<td>22%</td>
</tr>
<tr>
<td>Master’s</td>
<td>15%</td>
<td>22%</td>
</tr>
<tr>
<td>Ph.D</td>
<td>68%</td>
<td>51%</td>
</tr>
</tbody>
</table>

*†* indicates significant difference at the 95% confidence level.

Q01/SC1: What is the **highest** degree you have received to date? Select one.
Which field of chemistry is most common for those with a PhD?

- Environmental
- Biochemistry
- Polymer
- Organic
- General

* If your answer differs greatly from the choices above tell us in the chat!

Education: Field of Highest Degree

- Overall, organic chemistry is the highest degree attained by close to 1 in 5 ACS members surveyed, more than any other field concentration.
- General chemistry emerges as the top field among new grads.

<table>
<thead>
<tr>
<th>Field</th>
<th>Male (n=3031)</th>
<th>Female (n=2128)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic chemistry</td>
<td>21.9%</td>
<td>13.4%</td>
</tr>
<tr>
<td>Analytical chemistry</td>
<td>9.9%</td>
<td>10.9%</td>
</tr>
<tr>
<td>General chemistry</td>
<td>8.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Inorganic chemistry</td>
<td>11.2%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Physical chemistry</td>
<td>9.4%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>6.5%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Chemical engineering</td>
<td>6.8%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Chemical education</td>
<td>1.9%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Polymer chemistry</td>
<td>2.8%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Biology</td>
<td>1.4%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Environmental chemistry</td>
<td>1.8%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Computational chemistry</td>
<td>2.2%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Materials science</td>
<td>1.7%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Medicinal/pharmaceutical chemistry</td>
<td>2.2%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Other 22%, includes (each <1.8%): Other chemical science, Business administration, Agricultural/food chemistry, Biotechnology, Nanotechnology, Materials engineering, Biochemical engineering, Law, Clinical Chemistry, Computer science, Neurochemistry, Other non-chemistry.

Total (n=5339)

New grads (n=661)

▲ Indicates significant difference at the 95% confidence level
The unemployment rate continues to be lower than the U.S. unemployment rate, which rose since last year:

The majority of ACS members are employed full time.

Unchanged since March 2020, 4.0 percent are underemployed – they have taken part-time work because suitable full-time work was not available, or they are unemployed and seeking employment.

Adapted from ACS Comprehensive Salary and Employment Survey and ChemCensus 2002 to 2020 and Bureau of Labor Statistics Unemployment (as of March of each year)
Employment: Annual Salary

- Average annual salary ranges from $70K to $120K depending on highest degree held. Recent grads average base salary is $34K to $75K.
- Gender disparities persist, but are less pronounced among recent grads.

<table>
<thead>
<tr>
<th>Degree</th>
<th>Total U.S.</th>
<th>New grad</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor's</td>
<td>$70,874↑</td>
<td>$34,785</td>
<td>$80,632↑</td>
<td>$62,433</td>
</tr>
<tr>
<td>Master's</td>
<td>$86,572↑</td>
<td>$50,493</td>
<td>$100,660↑</td>
<td>$73,758</td>
</tr>
<tr>
<td>Ph.D</td>
<td>$120,334↑</td>
<td>$75,583</td>
<td>$129,748↑</td>
<td>$102,199↑</td>
</tr>
</tbody>
</table>

Mean base income shown
+↑ indicates significant difference at the 95% confidence level

Employment: New Grad Job Fit

- Most recent grads are employed in positions that are at least somewhat related to their field and commensurate with their education and training, however, they report less alignment in 2021 than in 2020.

<table>
<thead>
<tr>
<th>Question</th>
<th>Total</th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Ph.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q11: What was your base ANNUAL salary from your primary employer?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q26: Please rate your agreement with the following statements regarding primary employment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Which job search resource do you find most beneficial?

- Employment Agency
- Faculty Advisor
- Electronic Resources
- Informal Channels
- Sending out vita/resume

* If your answer differs greatly from the choices above tell us in the chat!

Employment: Job Search

- Electronic resources or an informal channel are the top two most used job search channels and are considered the most effective.

- Recent grads’ report they were more likely to use an electronic resource than their faculty advisor – a shift from last year.

<table>
<thead>
<tr>
<th>Job Search Methods Used</th>
<th>Bachelor’s (n=975)</th>
<th>Master’s (n=983)</th>
<th>PhD (n=3332)</th>
<th>Recent grad (n=661)</th>
<th>Not a recent grad (n=4576)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic resource</td>
<td>34%</td>
<td>31%</td>
<td>34%</td>
<td>36%</td>
<td>34%</td>
</tr>
<tr>
<td>Informal channel</td>
<td>27%</td>
<td>26%</td>
<td>28%</td>
<td>27%</td>
<td>28%</td>
</tr>
<tr>
<td>Former employer</td>
<td>9%</td>
<td>8%</td>
<td>12%</td>
<td>11%</td>
<td>13%</td>
</tr>
<tr>
<td>Faculty advisor(s)</td>
<td>6%</td>
<td>5%</td>
<td>9%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Newsletter/magazine</td>
<td>8%</td>
<td>6%</td>
<td>8%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Unsolicited offer</td>
<td>5%</td>
<td>4%</td>
<td>7%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>Sent vita or resume</td>
<td>4%</td>
<td>3%</td>
<td>6%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Employment agency</td>
<td>12%</td>
<td>13%</td>
<td>9%</td>
<td>14%</td>
<td>7%</td>
</tr>
<tr>
<td>Placement service</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Newspaper advertisement</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>ACS Network</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

* indicates significant difference at the 95% confidence level
+/- since 2020

Q10A: Which job search methods did you use for your most recent position? Please select all that apply.
Q10B: Which was the single most effective job search method? Select one.
Employment: Sector

- Half (49%) of members are employed by an academic institution.
- Just over one-third (39%) are employed in industry and have an average base salary significantly higher than their academic counterparts.

Current or Most Recent Employer

- Academic: 49%
- Industry (manufacturing or non-manufacturing): 39%
- Self-employed: 2%
- Other: 3%
- Gov’t or Military: 7%

Employed or Seeking employment (n=5206)

Full-time employed (n=4622):
- 48% Academic
- 41% Industry
- 1% Self-employed

Part-time employed (n=5206):
- 56% Academic
- 16% Industry
- 12% Self-employed

Academic: Avg base salary $82,000

Industry: Avg base salary $130,000

*1 indicates significant difference at the 95% confidence level

QAB: Which of the following best describes your current or most recent employer? Select one.

Employment: Sector Trends

ACS Workforce by Field

- Industry (manufacturing):
  - 2004: 34%
  - 2005: 31%
  - 2006: 36%
  - 2007: 40%
  - 2008: 44%
  - 2009: 44%
  - 2010: 40%
  - 2011: 41%
  - 2012: 39%
  - 2013: 37%
  - 2014: 34%
  - 2015: 37%
  - 2016: 37%
  - 2017: 40%
  - 2018: 41%
  - 2019: 41%
  - 2020: 44%
  - 2021: 48%

- Academic:
  - 2004: 55%
  - 2005: 49%
  - 2006: 49%
  - 2007: 50%
  - 2008: 45%
  - 2009: 45%
  - 2010: 45%
  - 2011: 44%
  - 2012: 44%
  - 2013: 42%
  - 2014: 40%
  - 2015: 41%
  - 2016: 40%
  - 2017: 39%
  - 2018: 39%
  - 2019: 39%
  - 2020: 41%
  - 2021: 42%

- Industry (non-manufacturing):
  - 2004: 91%
  - 2005: 87%
  - 2006: 89%
  - 2007: 88%
  - 2008: 87%
  - 2009: 81%
  - 2010: 84%
  - 2011: 83%
  - 2012: 79%
  - 2013: 78%
  - 2014: 76%
  - 2015: 76%
  - 2016: 77%
  - 2017: 77%
  - 2018: 77%
  - 2019: 77%
  - 2020: 77%
  - 2021: 77%

- Government:
  - 2004: 7%
  - 2005: 12%
  - 2006: 14%
  - 2007: 15%
  - 2008: 14%
  - 2009: 13%
  - 2010: 12%
  - 2011: 12%
  - 2012: 11%
  - 2013: 8%
  - 2014: 8%
  - 2015: 7%
  - 2016: 7%
  - 2017: 7%
  - 2018: 7%
  - 2019: 7%
  - 2020: 7%
  - 2021: 7%

- Self-Employed:
  - 2004: 2%
  - 2005: 2%
  - 2006: 2%
  - 2007: 2%
  - 2008: 2%
  - 2009: 1%
  - 2010: 2%
  - 2011: 2%
  - 2012: 2%
  - 2013: 2%
  - 2014: 2%
  - 2015: 2%
  - 2016: 2%
  - 2017: 2%
  - 2018: 2%
  - 2019: 2%
  - 2020: 2%
  - 2021: 2%

Adapted from ACS Comprehensive Salary and Employment Survey and ChemCensus 2004 to 2021
ACS Membership and Gender

• 40% of U.S. ACS members surveyed are female*.
• Female members have largely closed the experience gap with males but their base income remained the same while males increased – creating a growing income disparity with male members than in 2020.

![Graph showing gender distribution among ACS members]

<table>
<thead>
<tr>
<th>Experience in Field</th>
<th>Men (n=3081)</th>
<th>Women (n=2217)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 years</td>
<td>$119,000†</td>
<td>$87,000</td>
</tr>
<tr>
<td>Age</td>
<td>47†</td>
<td>41</td>
</tr>
<tr>
<td>Base Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 years</td>
<td>$119,000†</td>
<td>$87,000</td>
</tr>
<tr>
<td>Age</td>
<td>47†</td>
<td>41</td>
</tr>
<tr>
<td>Experience in Field</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*note: the survey was comprised of 40.4% females; the sample list was 40% female too (based on available sample data by gender; 29,867 missing

International Respondents

• International survey participants are primarily from India and Canada, and mostly male

- Mean Annual Salary in USD: $58,660
- Median Annual Salary in USD: $52,619

- Non-U.S. respondents are less likely to be full-time employed, more post docs, and have a higher unemployment rate

- International members are more likely to hold a doctorate

- International respondents are largely employed academically
Other ACS Member Resources

- Salary Calculator
  https://www.acs.org/content/acs/en/careers/salaries/salary-calculator.html

- Salary & Employment Trends Archive
  https://www.acs.org/content/acs/en/careers/salaries/surveys.html
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How Much Did American Chemists Make in 2021?
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