

ACS
Chemistry for Life®

2022 Highlights of ACS Membership Demographics

American Chemical Society

→ acs.org/diversity

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Introduction

In 2020, the American Chemical Society added a new goal to its [strategic plan](#). Strategic Goal 5 focuses on the work around embracing and advancing inclusion in the chemistry enterprise. To track how well we are doing in welcoming diversity in age, race, gender, educational attainment, nationality, socioeconomic status, and other demographic identities, we need to regularly collect and report demographics data across the organization. Regular tracking of organizational demographics data is one of several ways to help ACS assess its progress toward Goal 5.

This report, published in the spring of 2023, is the first membership community diversity data report from the [ACS Office of Diversity, Equity, Inclusion, and Respect \(DEIR\)](#) done in collaboration with ACS Society Business Solutions. It is a baseline assessment that examines the availability and quality of our demographics data. To create the demographic representation of our membership community, we used data generated from information that our members have shared with us.

In looking at this report, you will see that the data quality around age, race, gender, and other self-reported demographic information by members is not as good as we'd like it to be, as many people don't self-report their demographic data. As scientists, we all can appreciate the need for high-quality data. Knowing who make up the ACS membership and their intersectionalities of identities helps ACS, as an organization, serve its members better by tailoring its products, programs, and services to be more relevant, equitable, and inclusive.

As we work together toward Strategic Goal 5, we ask that you share your demographic information with us so we can continue to assess the makeup of our membership community and the different audience segments we serve. We acknowledge that demographic information is sensitive; we will honor its sensitivity by reporting membership demographic data in aggregate so confidentiality of individual demographic information is protected. No information that ties back to an individual will be shared publicly. The regular assessments will help us to continue to improve our offerings to you. You can always update your demographic profile on [this form](#) at any time.

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If you would like to see a similar demographics report around the authors, reviewers, Editors, and advisors represented in ACS journals, please read the [ACS Publications Diversity Data Report](#).

If you have any questions or comments about this report, please email the Office of DEIR at diversity@acs.org.

We thank you for being a part of our community and working with us toward the ACS mission and vision by building a more diverse, equitable, inclusive, and respectful chemistry enterprise for all.



A handwritten signature in blue ink that reads "Rajendrani Mukhopadhyay".

Rajendrani Mukhopadhyay

Vice President, Office of Diversity, Equity, Inclusion, and Respect

Methodology

This report was completed in collaboration with ACS Society Business Solutions. It uses data generated primarily from netFORUM (the Association Management System) to report the current demographic representation of our membership community (U.S.-based and non-U.S.-based).

Multiple ACS data sources were used to build a refined, consolidated demographics profile for each member (i.e., because no single data source contains all the demographic data for members).

→ ACS (Internal) Data Sources:

Unless otherwise noted, the figures in this report were generated using the following ACS data:

- ACS 2021 Salary and Employment Status Survey (administered May 10 to June 23, 2021)
- ACS 2021 Membership Satisfaction Survey (administered October 22 to November 4, 2021)
- ACS Society Data Store (with data from the Abila netFORUM Membership Management System); this data was exported on 7/28/22

→ Non-ACS (External) Data Source:

This report used the following U.S. Census Bureau microdata about the U.S. workforce:

- 2021 Current Population Survey using IPUMS (Integrated Public Use Microdata Series)

→ Population Summary:

The total ACS membership population (as of 7/28/22) was 161,103

- U.S.-based population was 108,946
- Non-U.S.-based population was 34,194
- Location was unavailable for 17,963 members
- 46.3% (4,009 out of a total of 8,642) of the American Association of Chemistry Teachers (AACT) members are included in the ACS membership population of 161,103

→ Notes:

- Data representing small populations have been aggregated to preserve individual confidentiality
- This report contains only voluntary, self-reported demographic data as well as additional assigned categorization

Definition of Terms

- “Respondent” describes the members and individuals within the ACS membership community who provided the data we shared in this report
- The term “U.S.-based” describes respondents who are based in the U.S.
- The term “non-U.S.-based” describes respondents who are based outside the U.S.
- All the figures in this report include both U.S.-based and non-U.S.-based respondents (except where noted)
- “N” refers to the total size of the population
- “n” refers to the sample size (i.e., the number of respondents) being reported
- We use the term “Location” to differentiate U.S.-based respondents from non-U.S.-based respondents (as opposed to the term “Country”)

Data Coverage

Data coverage describes the quality of the data reported. A higher data coverage percentage means that more data is available; the greater amount of information means the data is higher quality (i.e., 100% coverage means we have the data for every respondent in the population). A lower data coverage percentage tells us that some data is missing – either because the respondent did not provide their information or the information was not captured by ACS' membership management system or the surveys.

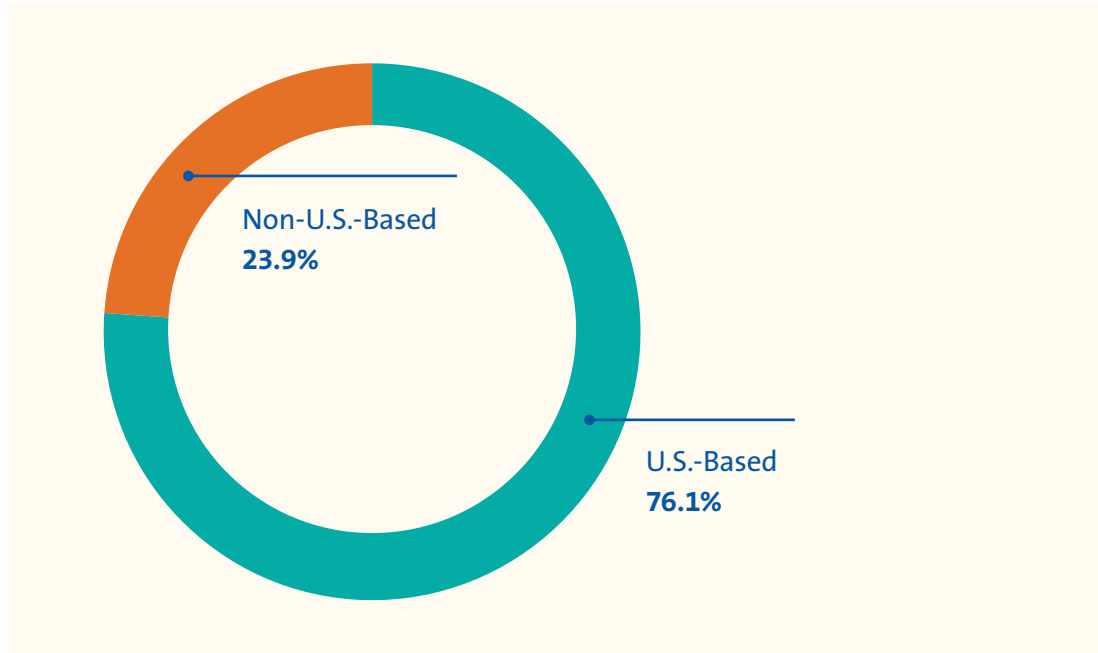
Therefore, taking data quality into consideration, our observations refer only to the ACS membership community respondents for whom we have valid data (and which they themselves shared voluntarily).

| Data Coverage of Respondents (N = 161,103) | | |
|--|-----------------------|-----------------------------------|
| Category | Number of Respondents | Percentage of Respondents Covered |
| Membership Type | 161,103 | 100 |
| Location | 143,140 | 89 |
| Country | 143,140 | 89 |
| Years of Service | 134,042 | 83 |
| Gender | 121,833 | 76 |
| Employment Sector | 106,163 | 66 |
| Age | 106,529 | 66 |
| Race / Ethnicity | 66,585 | 41 |
| Educational Attainment | 54,648 | 34 |
| Degree Discipline | 49,295 | 31 |

Entire ACS Membership

Location

Membership by Location (n = 143,140)

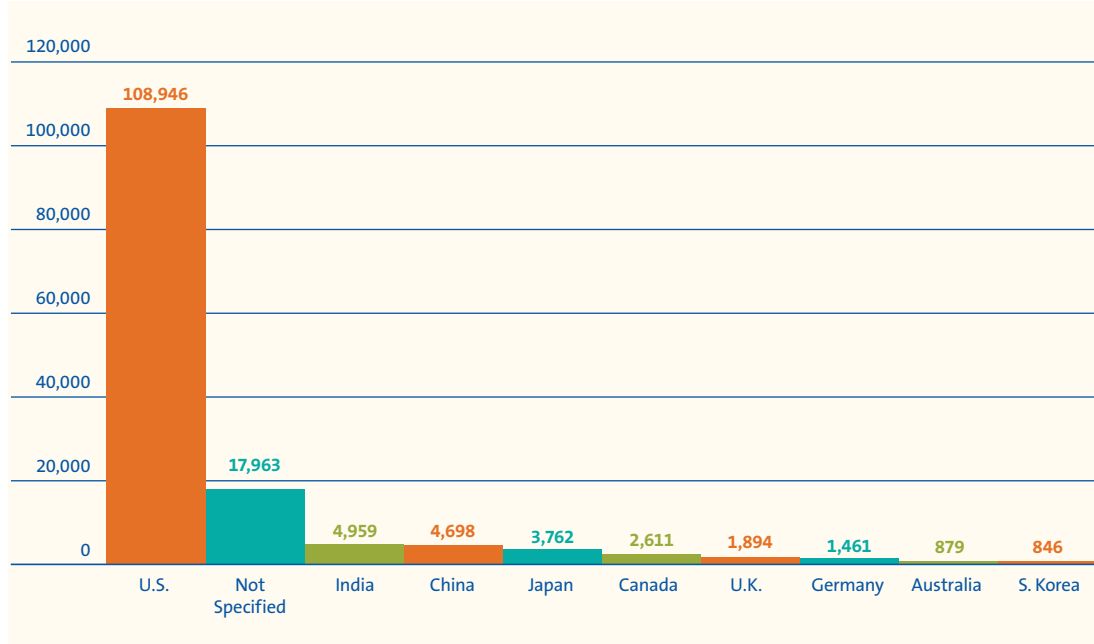


→ LOCATION OBSERVATIONS

- Most respondents (about 76% or 108,946) are U.S.-based
- Nearly one quarter of respondents (23.9% or 39,073) reside outside of the U.S.

Country

Top 10 Countries by Member Count (n = 148,019)

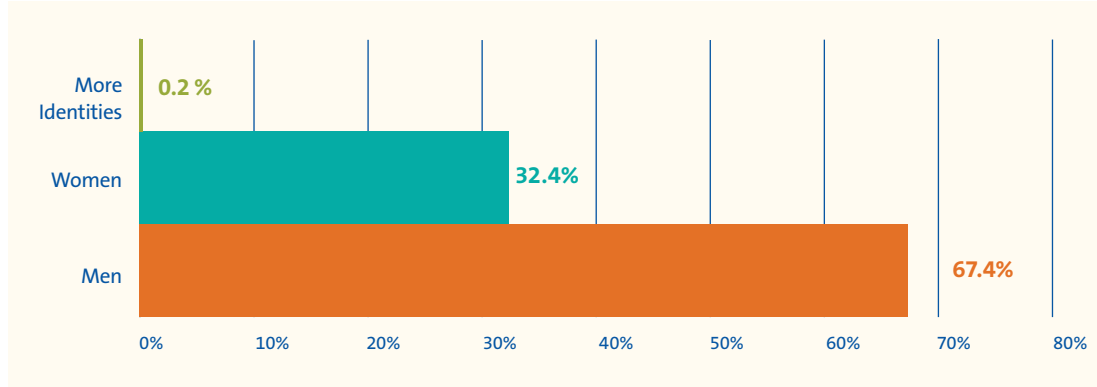


→ COUNTRY OBSERVATIONS

- Respondents reside in 166 countries (see [Appendix](#) for the list of countries with respondents)
- After the U.S., India, China, and Japan are the countries with the most respondents

Gender Identity

ACS Membership by Gender (n = 121,833)



Note: As described in the Methodology section, multiple data sources were used for this report. Among these sources, gender identifiers and terms varied. To include as many respondents as possible we applied these gender identity labels:

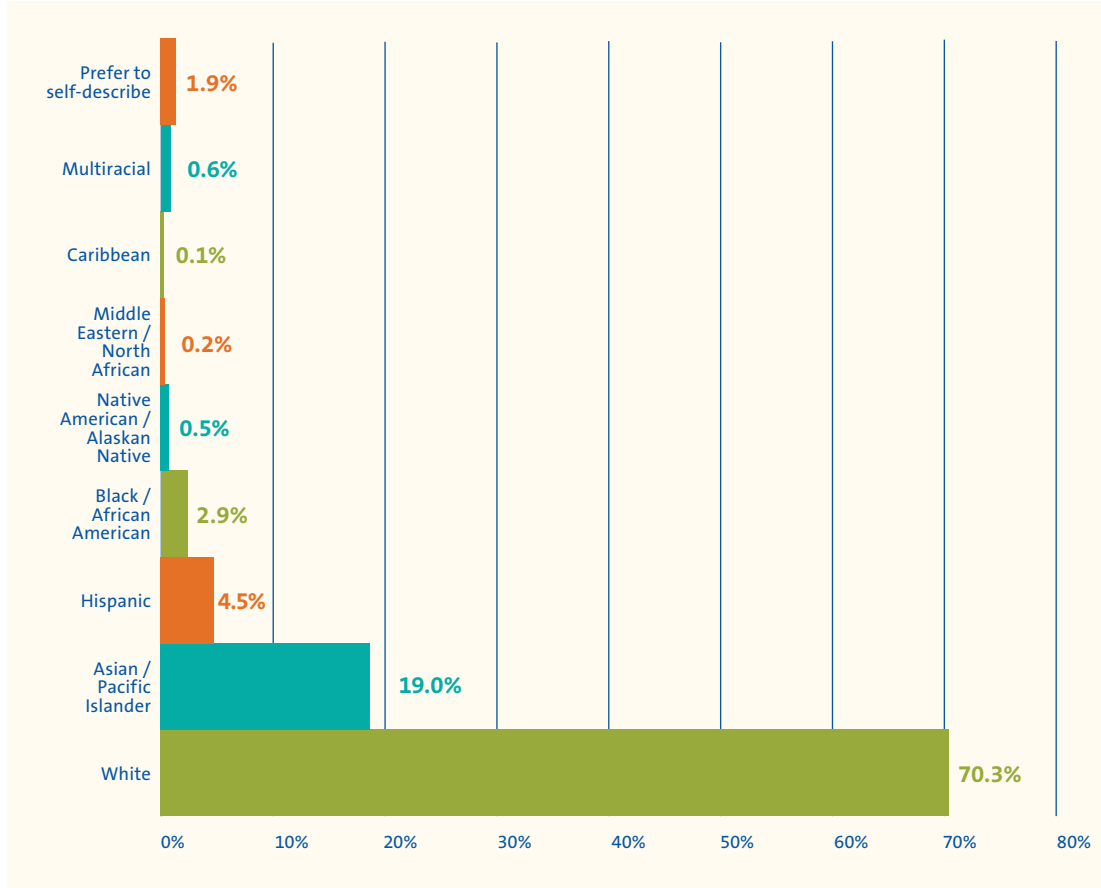
- “Men” includes persons who said they are male, man, or transgender male
- “Women” includes persons who said they are female, woman, or transgender female
- “More Identities” includes persons who said they are nonbinary or prefer to self-describe

→ GENDER IDENTITY OBSERVATIONS

- Most of the 121,833 respondents (67%) are men
- Approximately one-third of respondents (32.4% or 39,490) are women
- 0.2% or 278 respondents identify as nonbinary or prefer to self-describe

Race / Ethnicity

ACS Membership by Race / Ethnicity (n = 66,585)

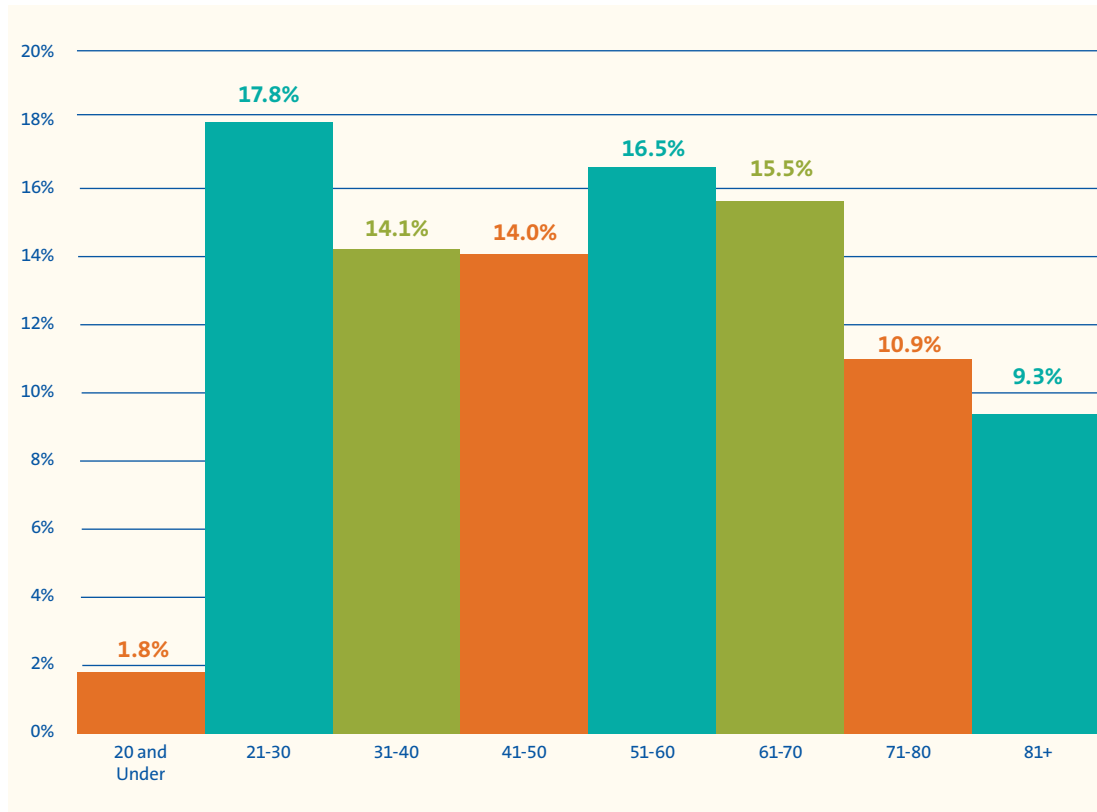


→ RACE / ETHNICITY OBSERVATIONS

- The majority of the 66,585 respondents (70.3% or 46,788) identify as White
- Nearly one-fifth of respondents (19.0% or 12,678) identify as Asian or Pacific Islander

Age

ACS Membership by Age (n = 106,529)

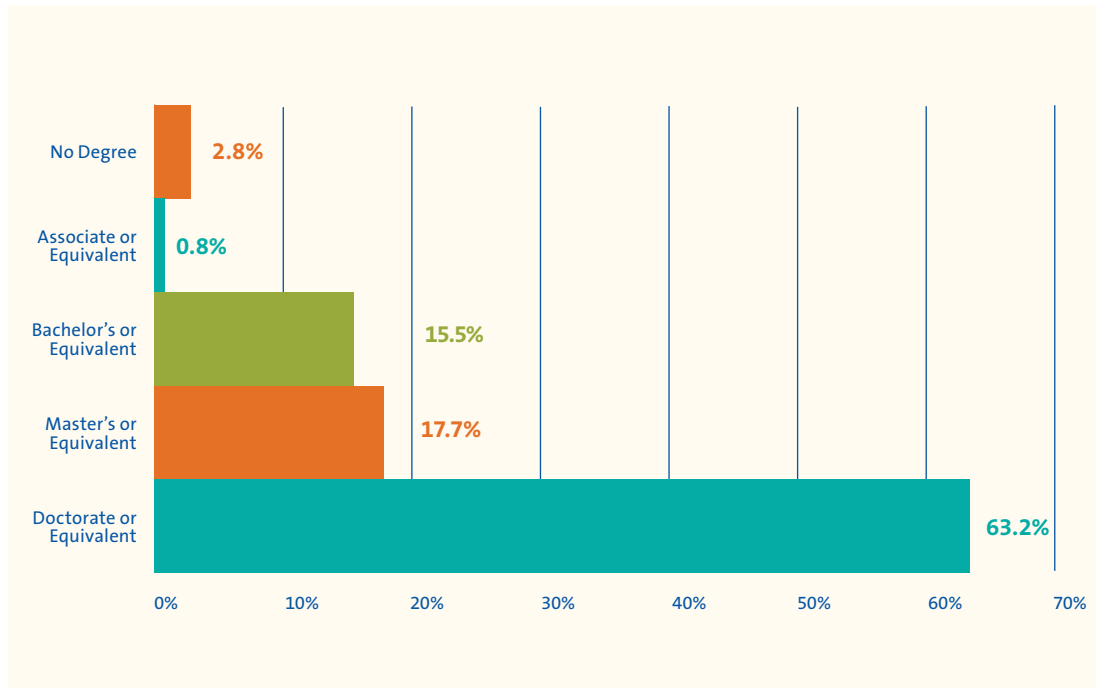


→ AGE OBSERVATIONS

- About one-fifth of 106,529 respondents (19.6% or 20,932) are 30 years or younger
- Over half of respondents (52.2% or 55,593) are 51 years or older

Educational Attainment

ACS Membership by Educational Attainment (n = 54,648)

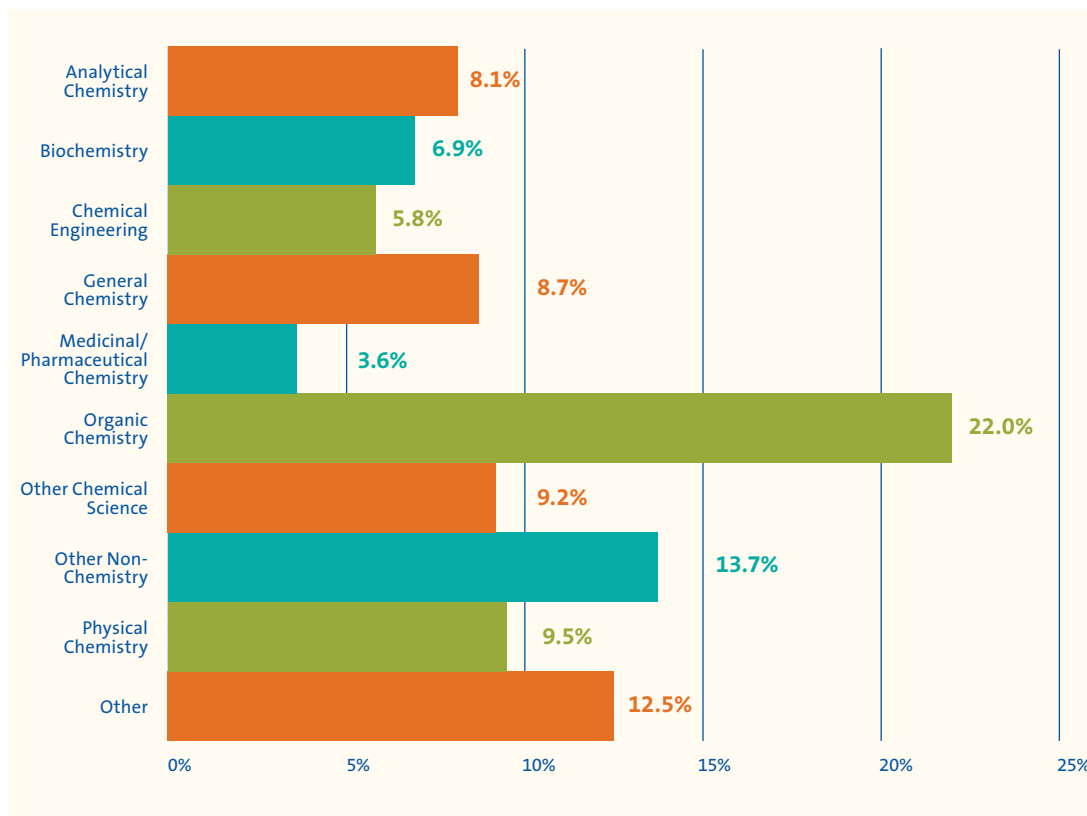


→ EDUCATIONAL ATTAINMENT OBSERVATIONS

- The majority of the 54,648 respondents (63.2% or 34,556) hold a doctorate degree or equivalent
- Less than 3% of respondents (1,508) do not hold a degree

Degree Discipline

ACS Membership by Chemistry Degree Discipline (n = 49,295)



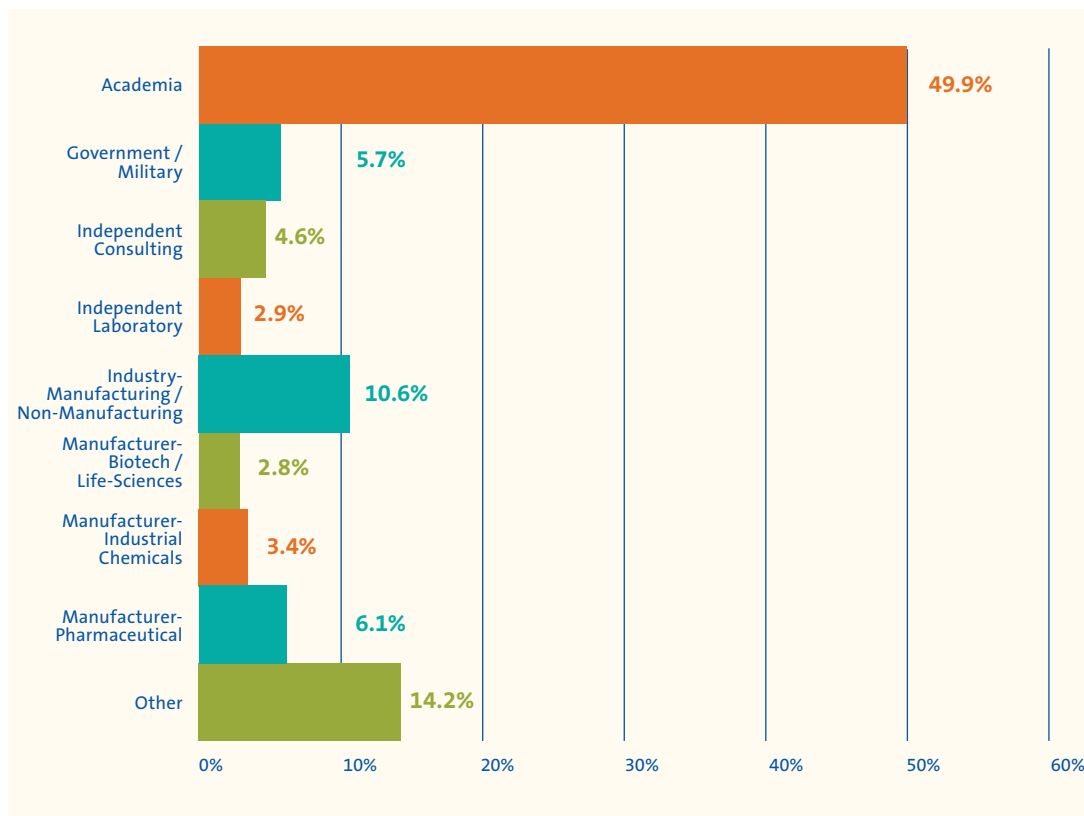
Note: Due to small sample sizes, "Other" includes agricultural/food, chemical education, environmental chemistry, materials science, and polymer chemistry.

→ DEGREE DISCIPLINE OBSERVATIONS

- The most common degree discipline is organic chemistry (22% or 10,862 of 49,295 respondents)
- 14% of respondents (6,734) have a degree discipline outside of chemistry and chemical science

Employment Sector

ACS Membership by Employment Sector (n = 106,163)



Note: Due to small sample sizes, “Other” includes engineering/construction, hospital clinic, manufacturer-petrochemical, manufacturer-agricultural, manufacturer-environmental/water, manufacturer-food/beverage/flavors, other, public utility/transportation, retail/wholesale trade, and self-employed.

→ EMPLOYMENT SECTOR OBSERVATIONS

- One-half of respondents (52,944) are in academia
- Outside of academia, industry-manufacturing/non-manufacturing (11% or 11,224), government/military (6% or 6,001), and manufacturer-industrial chemicals (6% or 3,600) are the most common industries of respondents

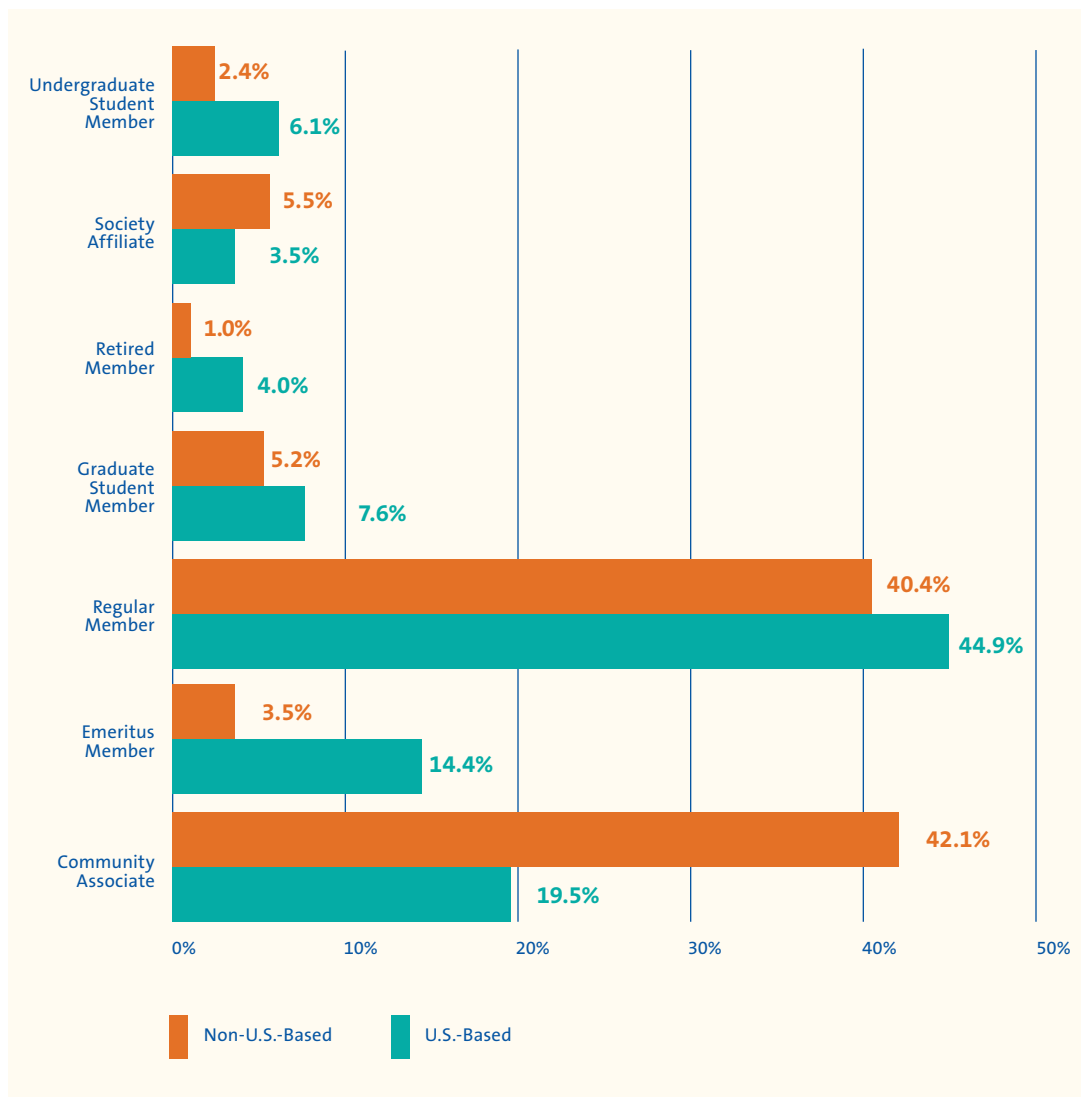
Comparisons between U.S.-Based Respondents and Non-U.S.-Based Respondents

Data Coverage

| Data Coverage of Respondents | | |
|------------------------------|-----------------------|-----------------------------------|
| Variables | Number of Respondents | Percentage of Respondents Covered |
| U.S.-Based | | |
| Membership Type | 108,946 | 100 |
| Non-U.S.-Based | | |
| Membership Type | 34,194 | 100 |

Membership by Location

ACS Membership Community Type by Location



→ MEMBERSHIP COMMUNITY TYPES

- **Regular Member:** A person who has a degree, certification, or significant work history in a STEM field, or as a teacher of chemical science.

- **Society Affiliate:** A person whose occupation directly concerns the practice of a chemical science but does not meet degree or work history requirements.
- **Graduate Student Member:** A student majoring in a chemical science or in a related field of natural science, engineering, technology, or science education at an appropriately accredited educational institution.
- **Undergraduate Student Member:** A person who is an undergraduate student majoring in a chemical science or in a related field of natural science, engineering, technology, or science education at an appropriately accredited educational institution.
- **Retired Member:** A person who has 30 or more years of paid ACS membership and is retired from full-time professional employment. They are entitled to a 50% discount on ACS national dues.
- **Emeritus Member:** A person who has 35 years or more of paid ACS membership, is retired from full-time professional employment, and is over the age of 70. They are entitled to a 100% discount on ACS national dues.
- **Community Associate:** a person who does not pay dues and receives a limited set of benefits.

For more information about ACS membership, please visit [Dues Categories & Discounts](#) and [ACS Membership](#).

→ MEMBERSHIP COMMUNITY TYPE LOCATION OBSERVATIONS

- About 72% of constituents globally (116,330) are either Regular Members or Community Associates
- About 11% of constituents globally (17,516) are Student Members
- 42% of non-U.S.-based respondents (14,397) are Community Associates compared to 20% of U.S.-based respondents (21,260)
- 4% of non-U.S.-based respondents (1,199) are Emeritus Members compared to 14% of U.S.-based respondents (15,644)

→ OBSERVATIONS

There are several opportunities to enhance data collection and expand representation in several demographic identities in the ACS membership community:

1) Improve demographic data coverage for respondents.

- Of the 9 demographic dimensions reported here, data coverage (i.e., the percentage of the population for which data is available) ranges from a high of 100% (for membership community type) to a low of 31% (for degree discipline). The average data coverage for all dimensions reported is about 67% (see Data Coverage).
- Collecting data from our constituents remains a challenge. We must pursue new methods to engage with and incentivize our respondents to voluntarily self-report and update their demographics data.
- Improving data coverage over time will help us to represent as many people as possible.

2) Expand the makeup of ACS membership.

2.1) Race and Ethnicity

- Hispanic or LatinX persons comprise 5% of the ACS membership community compared to 18%* of the U.S. workforce.
- Black, African-descent, or African American persons comprise 3% of the ACS membership community compared to 11%* of the U.S. workforce.

2.2) Gender

- Most respondents (67%) identify as men compared to 52%* of the U.S. workforce.

2.3) Age

- About one-fifth of respondents (19.6%) are 30 years or younger (compared to 23.0%* of the U.S. workforce).
- Over half of respondents (52.2%) are 51 years or older (compared to 35.0%* of the U.S. workforce).
- About one-fifth of respondents are 70 years or older (compared to 3.0%* of the U.S. workforce).

***Source:** Analysis of the 2021 Current Population Survey using IPUMS (sample includes the civilian noninstitutionalized population aged 20 and older in the 50 states and the District of Columbia who are employed).

Appendix

| | | | |
|--|--------------------|---------------|----------------------------------|
| Non-U.S.-Based Countries with ACS Members | Chile | Iraq | Nicaragua |
| Afghanistan | China | Ireland | Niger |
| Albania | Colombia | Israel | Nigeria |
| Algeria | Cook Islands | Italy | North Korea |
| American Samoa | Costa Rica | Jamaica | Northern Mariana Islands |
| Angola | Cote D Ivoire | Japan | Norway |
| Antigua And Barbuda | Croatia | Jordan | Oman |
| Argentina | Cuba | Kazakhstan | Pakistan |
| Armenia | Cyprus | Kenya | Palestine |
| Australia | Czech Republic | Kiribati | Panama |
| Austria | Denmark | Kuwait | Papua New Guinea |
| Azerbaijan | Djibouti | Latvia | Paraguay |
| Bahamas | Dominican Republic | Lebanon | Peru |
| Bahrain | Ecuador | Liberia | Philippines |
| Bangladesh | Egypt | Libya | Poland |
| Barbados | El Salvador | Liechtenstein | Portugal |
| Belarus | Estonia | Lithuania | Qatar |
| Belgium | Ethiopia | Luxembourg | Romania |
| Belize | Faroe Islands | Macau | Russia |
| Benin | Fiji | Macedonia | Rwanda |
| Bermuda | Finland | Madagascar | Saint Kitts And Nevis |
| Bolivia | France | Malawi | Saint Vincent And The Grenadines |
| Bosnia | Gambia | Malaysia | Samoa |
| Botswana | Georgia | Maldives | Saudi Arabia |
| Brazil | Germany | Malta | Senegal |
| Brunei | Ghana | Martinique | Serbia |
| Bulgaria | Greece | Mauritius | Sierra Leone |
| Burkina Faso | Guatemala | Mexico | Singapore |
| Cambodia | Guyana | Moldova | Slovakia |
| Cameroon | Honduras | Mongolia | Slovenia |
| Canada | Hong Kong | Morocco | South Africa |
| Cape Verde | Hungary | Mozambique | South Korea |
| Cayman Islands | Iceland | Myanmar | Spain |
| | India | Namibia | Sri Lanka |
| | Indonesia | Nepal | |
| | Iran | Netherlands | |
| | | New Zealand | |

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| | | | |
|-------------|---------------------|----------------------|----------|
| Sudan | Thailand | United Arab Emirates | Yemen |
| Swaziland | Trinidad And Tobago | United Kingdom | Zaire |
| Sweden | Tunisia | Uruguay | Zambia |
| Switzerland | Turkey | Uzbekistan | Zimbabwe |
| Syria | Uganda | Venezuela | |
| Taiwan | Ukraine | Vietnam | |
| Tanzania | | | |

IPUMS Data Source

IPUMS (Integrated Public Use Microdata Series) is part of the Institute for Social Research and Data Innovation at the University of Minnesota (<https://cps.ipums.org/cps/>). IPUMS collects, preserves, and harmonizes U.S. census microdata with enhanced documentation for social, economic, and health research.

Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles, J. Robert Warren and Michael Westberry. Integrated Public Use Microdata Series, Current Population Survey: Version 9.0 [ASEC 2021]. Minneapolis, MN: IPUMS, 2021. <https://doi.org/10.18128/D030.V9.0>.