

Two-Year College Chemistry Landscape 2010: Resources and Priorities Survey Summary Report

Survey Overview

Background

According to the US Bureau of Labor Statistics, around 20% of post-secondary chemistry faculty work at two-year colleges.¹ The National Science Foundation reports that approximately 40% of bachelor's and master's degrees in science are awarded to students who attended a two-year college at some point in their academic careers.² To provide insight into the needs of this vital segment of the chemistry education community and assess the impact of ACS resources, ACS conducted the *Two-Year College Chemistry Landscape 2010: Resources and Priorities* survey in late fall 2010.

Response rate and institutional information

Just under 900 responses were received, amounting to 26.0% of the initial survey notices distributed. Responses were received from most states, with the exception of Alaska and South Dakota. Approximately 40% of the respondents were at institutions offering certificate or associate degree programs in chemistry, 23% were at institutions offering certificate or associate degree programs in a chemistry-based technology, 57% were at institutions offering certificate or associate degree programs in general sciences or chemistry-allied fields, and 59% were at institutions offering transfer chemistry programs without degrees.

Of the 894 responses received, 15.2% reported their institutions had fewer than 100 chemistry students, 44.1% reported 101-500 chemistry students, 24.0% reported 501-1500 chemistry students, and 8.4% reported having more than 1,501 students.

Faculty professional affiliation

While 20% of respondents reported having no professional affiliations, 59% reported being ACS members and 31% were members of the ACS Two-Year College Chemistry Consortium (2YC₃). Additionally, 21% re-

ported belonging to a labor union and 23% were members of another professional organization, such as the National Science Teachers Association and the American Association for the Advancement of Science.

Two-year college chemistry needs

Over 90% of respondents reported that faculty professional development, curriculum development, student transfer, student employability skills, program infrastructure, and data and effective practices from other two-year colleges were important to them; 85.0% of respondents felt partnerships were important. Respondents reported that additional resources addressing program infrastructure, data and effective practices, professional development, and curriculum development were of particularly high need.

By the numbers: Programs

Of the 894 respondents to the Two-Year College Chemistry Landscape 2010 survey:

- 40% reported their institution offered a certificate or associate degree program in chemistry
- 23% reported their institution offered a certificate or degree program in a chemistry-based technology

Respondents were asked to select and rank four resources from the following list in terms of which would have the greatest impact:

- ACS policy documents
- Online discussions and other social media
- Case studies or effective practices in two-year college chemistry education
- Program assessment or self-study tools
- Data for benchmarking programs
- In-person workshops on program development
 - Online professional development courses or webinars
 - Funding to present at ACS meetings
 - Funding for courses, workshops, other professional development activities

Over 60% of respondents felt that case studies or effective practices in two-year college

chemistry education and funding for professional development workshops would benefit them. Additionally, 55% felt that program assessment or self-study tools would be beneficial, and 40% were interested in ACS policy documents and online professional development

By the numbers: Memberships

Of the 894 respondents to the Two-Year College Chemistry Landscape 2010 survey:

- 59% were ACS members
- 31% were Two-Year College Chemistry Consortium members

opportunities. When asked to rank the resources, respondents assigned the greatest value to funding for professional development workshops, followed by funding to present at ACS meetings, case studies and effective practices, and program assessment tools.

When asked about specific professional development opportunities, over 70% indicated interest in workshops, consistent with other responses to questions about professional development. Of the meetings offered by ACS, 2YC₃ meetings were of greatest interest, followed by ACS regional meetings, the ACS Division of Chemical Education's Biennial Conference on Chemical Education, and ACS national meetings.

Respondents were also interested in resources addressing the following topics:

- Research at two-year colleges or in partnership with four-year colleges
- Obtaining and maintaining appropriate equipment and instrumentation
- Curriculum development
- Online courses, hybrid courses, and distance learning
- Grant writing
- Partnerships and outreach

While most respondents expressed interest in professional development, if additional funding could be made available, 12-14% of respondents reported that issues other than money prevented them from participating in any of the indicated activities.

Impact of the ACS Guidelines for Chemistry in Two-Year College Programs

Just over 70% of respondents were familiar with the *ACS Guidelines for Chemistry in Two-Year College Programs*, 80% of whom have viewed or used them. The most common use for the Guidelines was program evaluation and self-assessment, followed by implementing chemical safety plans, procuring equipment, and supporting faculty professional development.

Other uses for the Guidelines included the following:

- Limiting faculty teaching loads
- Guiding design of new or renovated laboratories
- Defining faculty qualifications
- Establishing partnerships with other institutions or employers
- Hiring of support personnel and additional instructors
- Supporting institutional accreditation

About 70 descriptions of how the Guidelines were used by individuals were submitted. Depending on the topic, 31-53% of the 170 respondents who reported using the Guidelines found them to be somewhat or very useful.

By the numbers: Community needs

Of the 775 respondents who reported on their needs:

- 85% felt that additional data and effective practices regarding two-year college chemistry are needed
- 77% felt that additional professional development resources are needed
- 76% felt that additional resources for developing partnership are needed

The two most common explanations for not using them were: 1) lack of specificity in the Guidelines, and 2) lack of administrative support for implementation of the Guidelines.

Of the 753 respondents who completed the entire survey, 361 expressed interest in follow-up communications to discuss the Guidelines, faculty development, or other topics related to two-year college chemistry education.

Next Steps

One of the goals of the Two-Year College Chemistry Landscape 2010 survey was to identify the needs of the two-year college chemistry community; ACS activities will be focused on development of new resources to address high-need areas that are not currently addressed through other means. Such resources include regional professional development workshops to address key areas in two-year college chemistry education and supplements, case studies, and effective practices that illustrate the application of the *ACS Guidelines for Chemistry in Two-Year College Programs*.

By the numbers: ACS Guidelines

Of the 894 respondents to the Two-Year College Chemistry Landscape 2010 survey:

- 71% were familiar with the *ACS Guidelines for Chemistry in Two-Year College Programs*

Of the 170 respondents who had used the Guidelines:

- 85% found them helpful for program self-assessment
- 79% found them helpful for implementing a chemical safety plan
- 71% found them helpful in procuring laboratory equipment

The development and oversight of ACS activities is administered by a partnership among the ACS Office of Two-Year Colleges, the Society Committee on Education's Task Force on Two-Year College Activities, and Division of Chemical Education's Committee on Chemistry in the Community College. For more information, please contact the ACS Office of Two-Year Colleges at 2YColleges@acs.org or 1-800-227-5558, ext. 6108.

References

1. US Bureau of Labor Statistics. *Occupational Employment Handbook, May 2009*. www.bls.org (accessed January 2011).
2. *NSF InfoBrief*. <http://www.nsf.gov/statistics/infbrief/nsf04315/> (accessed November 2010)