Assessment Mini-Tool

Development of Student Skills in Two-Year College Programs

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Introduction and Instructions

Scope

This assessment of the development of student skills corresponds to Section VII of the *ACS Assessment Tool for Chemistry in Two-Year College Programs*. The assessment tool is designed to allow chemistry faculty and administrations to assess the achievements and areas for improvement of the chemistry-based programs and courses at their institution.

This section assesses only the development of student skills at your institution. It will help you document the resources available to develop the following skills in students:

* Problem-solving
* Use of chemical literature
* Laboratory safety
* Communication
* Teamwork and leadership
* Ethics

For a more in-depth evaluation of chemistry or chemistry-based technology education at your college, please use the complete *ACS Assessment Tool for Chemistry in Two-Year College Programs*, which can be downloaded at www.acs.org/2YGuidelines.

Instructions for using the assessment mini-tool

Collect data prior to completion of the mini-tool assessment form.

The mini- tool compiles a wide range of data from a variety of sources. It is most efficient to compile the data prior to completion of the assessment form.

It may be beneficial to consult the *ACS Guidelines for Chemistry in Two-Year College Programs* while completing the form. The PDF may be downloaded at [www.acs.org/2YGuidelines](http://www.acs.org/2YGuidelines); hardcopies are available upon request from the ACS Office of Two-Year Colleges.

Complete the comments sections.

Completing the comments sections in the form provides extra nuance to your assessment. For example, a question may ask whether funds are available for faculty professional development, and you may indicate that it is. In the comments section, you could then describe whether these funds are sufficient to keep faculty current in their fields, whether faculty are encouraged to use these funds, and so on.

***Consider completion of other mini-tools.***

Once you have completed this mini-tool, you can choose to assess other aspects of chemistry and chemistry-based technology education at your institution. ACS offers assessment mini-tools that address institutional environment, faculty and staff, infrastructure, curriculum, scholarly research and related activities, development of student skills, student mentoring and advising, self-evaluation and assessment, and partnerships.

A more in-depth analysis can be achieved using the complete *ACS Assessment Tool for Chemistry in Two-Year College Programs*, which collects demographics information and leads the user through an analysis of the challenges and opportunities available. If you use the complete form, you may replace Section III with the results of this assessment of faculty and staff status.

Contact ACS with questions and feedback.

Please direct any questions or concerns, as well as feedback regarding the assessment tool itself, to the ACS Office of Two-Year Colleges ([2YColleges@acs.org](mailto:2YColleges@acs.org); 1-800-227-5558, ext. 6108).

Development of the assessment tool

When the revised *ACS Guidelines for Chemistry in Two-Year College Programs* were released in 2009, the Society Committee on Education (SOCED) appointed the Task Force on Two-Year College Activities. The task force was charged with determining the interest in and viability of strategies for engaging and supporting two-year college programs.

In 2010, the task force partnered with the governing body of the ACS Two-Year College Chemistry Consortium (2YC3), the ACS Division of Chemical Education Committee on Chemistry in the Two-Year College (COCTYC). Together, the task force and COCTYC are developing several resources for the two-year college chemistry community.

One of the resources under development by the task force and COCTYC is the assessment tool. This tool was developed in recognition of the increasing pressure on two-year college programs to document and assess their activities. The tool was piloted and refined in 2011–2012 and released to the general public in 2013.

One such resource was the *ACS Assessment Tool for Chemistry in Two-Year College Programs*. This tool was developed in recognition of the increasing pressure on two-year college programs to document and assess their activities. The tool was piloted and refined in 2011–2012 and released to the general public in 2013. It is managed by the ACS Office of Two-Year Colleges with input from the Two-Year College Advisory Board and the Assessment Review Panel.

In 2014, Sections II through X of the *ACS Assessment Tool for Chemistry in Two-Year College Programs* were made available as individual tools for assessment specific aspects of two-year college programs.

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Development of Student Skills

See Section 7 of the ACS Guidelines for Chemistry in Two-Year College Programs, p. 16-17.

1. **What chemical literature publications are available to students? (Check all that apply.)**

|  | ***Print*** | ***Online (full subscription)*** | ***Off-campus access*** |
| --- | --- | --- | --- |
| *Chemical Abstracts™* |  |  |  |
| Other journal databases (specify): *Click here to enter text.* |  |  |  |
| *Chemical & Engineering News* |  |  |  |
| *Science* |  |  |  |
| *Nature* |  |  |  |
| *Journal of the American Chemical Society* |  |  |  |
| *Accounts of Chemical Research* |  |  |  |
| *Analytical Chemistry* |  |  |  |
| *Biochemistry* |  |  |  |
| *Chemical Reviews* |  |  |  |
| *Environmental Science & Technology* |  |  |  |
| *Journal of Chemical Education* |  |  |  |
| *Journal of Medicinal Chemistry* |  |  |  |
| *Journal of Organic Chemistry* |  |  |  |
| *Journal of Physical Chemistry*  *A*  *B*   *C*   *Letters* |  |  |  |
| Other ACS journals (specify): *Click here to enter text.* |  |  |  |
| Other peer-reviewed journals (specify): *Click here to enter text.* |  |  |  |
| Textbook publisher materials (specify): *Click here to enter text.* |  |  |  |
| Other chemistry-related publications (specify): *Click here to enter text.* |  |  |  |

1. **Indicate the location(s) in which students are able to access chemical literature. (Check all that apply.)**

Online, via personal computer

Online, via resource center or other centralized on-campus location

In print, at campus library

In print, at departmental resource area

In print, at institutional media center

In print, at neighboring academic institutions

Other (specify): Click here to enter text.

1. **Indicate the effectiveness of instruction in the following safety topics.**

| Course | ***Laboratory safety training*** | Chemical disposal techniques | ***Transferring and dispensing chemicals in the laboratory*** | ***Material safety data sheets (MSDS)*** | ***Other safety topics (specify): Click here to enter text.*** |
| --- | --- | --- | --- | --- | --- |
| General Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Organic Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Preparatory Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Chemistry for Health Science Majors | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| General Education Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
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| Other (specify): Click here to enter text.) | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |

1. **Describe any concerns regarding chemical safety education at this institution, along with any plans to address these concerns.**

Click here to enter text.

1. **Indicate the frequency with which chemistry students are provided opportunities to develop the following problem-solving skills.**

| Course | ***Define and analyze problems*** | ***Develop a testable hypothesis*** | ***Design and execute experiments*** | ***Analyze data*** | ***Draw appropriate conclusions*** | ***Other problem-solving skills (specify): Click here to enter text.*** |
| --- | --- | --- | --- | --- | --- | --- |
| General Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Organic Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Preparatory Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Chemistry for Health Science Majors | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
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| Other (specify): Click here to enter text.) | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |

* 1. **Briefly describe the opportunities that chemistry students have to develop problem-solving skills in chemistry courses.**Click here to enter text.
  2. **Briefly describe the opportunities that chemistry students have to develop problem-solving skills in either non-chemistry courses or extra-curricular activities.**Click here to enter text.

1. **Indicate the frequency with which chemistry students are provided opportunities to develop the following chemical literature skills.**

| Course | ***Find appropriate information in technical articles*** | ***Critically evaluate technical articles*** | ***Identify and retrieve technical articles*** | ***Use scientific databases*** | ***Other chemical literature skills (specify): Click here to enter text.*** |
| --- | --- | --- | --- | --- | --- |
| General Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Organic Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Preparatory Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Chemistry for Health Science Majors | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| General Education Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
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* 1. **Briefly describe the opportunities that chemistry students have to develop chemical literature skills in chemistry courses.**Click here to enter text.
  2. **Briefly describe the opportunities that chemistry students have to develop chemical literature skills in either non-chemistry courses or extra-curricular activities.**Click here to enter text.

1. **Indicate the frequency with which chemistry students are provided opportunities to develop the following chemical safety skills.**

| Course | ***Understand responsible disposal techniques*** | ***Understand and use material safety data sheets*** | ***Recognize and minimize chemical/physical hazards in the laboratory*** | ***Align activities with U.S. Occupational Safety and Health Administration requirements*** | ***Other chemical safety skills (specify): Click here to enter text.*** |
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| General Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Organic Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Preparatory Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
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  2. **Briefly describe the opportunities that chemistry students have to develop chemical safety skills in either non-chemistry courses or extra-curricular activities.**Click here to enter text.

1. **Indicate the frequency with which chemistry students are provided opportunities to develop the following communication skills.**

| Course | ***Prepare written scientific reports*** | ***Prepare and deliver oral presentations*** | ***Create visual representations of complex data*** | ***Cite sources*** | ***Use appropriate technology*** | ***Other communication skills (specify): Click here to enter text.*** |
| --- | --- | --- | --- | --- | --- | --- |
| General Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
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* 1. **Briefly describe the opportunities that chemistry students have to develop communication skills in chemistry courses.**Click here to enter text.
  2. **Briefly describe the opportunities that chemistry students have to develop communication skills in either non-chemistry courses or extra-curricular activities.**Click here to enter text.

1. **Indicate the frequency with which chemistry students are provided opportunities to develop the following teamwork and leadership skills.**

| Course | ***Work effectively in a group to solve problems*** | ***Interact productively within a diverse group of peers*** | ***Lead a group to solve problems*** | ***Other teamwork skills (specify): Click here to enter text.*** |
| --- | --- | --- | --- | --- |
| General Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Organic Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Preparatory Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
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| Other (specify): Click here to enter text.) | Choose an item. | Choose an item. | Choose an item. | Choose an item. |

* 1. **Briefly describe the opportunities that chemistry students have to develop teamwork and leadership skills in chemistry courses.**Click here to enter text.
  2. **Briefly describe the opportunities that chemistry students have to develop teamwork and leadership skills in either non-chemistry courses or extra-curricular activities.**Click here to enter text.

1. **Indicate the frequency with which chemistry students are provided opportunities to develop the following ethics skills.**

| Course | ***Display high personal standards of standards and integrity*** | ***Demonstrate an awareness of contemporary issues related to chemistry*** | ***Recognize ethical applications of chemistry in industrial, governmental, and societal settings*** | ***Participate in service-learning opportunities*** | ***Other ethics skills (specify): Click here to enter text.*** |
| --- | --- | --- | --- | --- | --- |
| General Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| Organic Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
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| Other (specify): Click here to enter text.) | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |

* 1. **Briefly describe how students are made aware role of chemistry and ethics in contemporary societal and global issues in chemistry courses.**Click here to enter text.
  2. **Briefly describe the opportunities that chemistry students have to develop ethics skills in either non-chemistry courses or extra-curricular activities.**Click here to enter text.

Provide any additional comments on the development of student skills in the chemistry curriculum.

Click here to enter text.

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