ACS Assessment Tool

for Chemistry in Two-Year College Programs

Section VII. Development of Student Skills

Scope of assessment tool section

The following is Section VII of the *ACS Assessment Tool for Chemistry in Two-Year College Programs*. The form will guide you through a self-assessment of how the development of student skills, such as problem-solving, use of chemical literature, laboratory safety, communication, teamwork, and ethics, are addressed at your institution.

Other sections of the tool address other aspects of chemistry-based education. For a more in-depth evaluation of chemistry or chemistry-based technology education at your institution, use the complete *ACS Assessment Tool for Chemistry in Two-Year College Programs*.

***If you intend to submit your work to ACS for feedback***, you must use the complete assessment tool. However, you may include your work on individual sections. Contact the ACS Undergraduate Programs Office (2YColleges@acs.org, 1-800-227-5558, ext. 6108) for more information.

The assessment tool is a resource developed by ACS to facilitate the assessment of chemistry education with respect to the *ACS Guidelines 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. Developed by two-year college chemistry faculty, it is managed by the ACS Undergraduate Programs Office with input from the Undergraduate Programs Advisory Board and the Assessment Review Panel.

For tips on completing the form and more information on the assessment tool, visit [www.acs.org/2YGuidelines](http://www.acs.org/2YGuidelines) or contact the ACS Undergraduate Programs Office (2YColleges@acs.org, 1-800-227-5558, ext. 6108).

VII. 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 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. |
| 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 the methods used to develop students’ chemical literature skills in chemistry courses.**Click here to enter text.
	2. **Briefly describe the methods used to assess students’ chemical literature skills in chemistry courses.**Click here to enter text.
	3. **Briefly describe the effectiveness of the methods used to develop students’ chemical literature skills in chemistry courses.**Click here to enter text.
	4. **Briefly describe the opportunities that chemistry students have to develop chemical literature skills outside of chemistry courses.**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 and use 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.*** |
| --- | --- | --- | --- | --- | --- |
| 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. |
| Other (specify): Click here to enter text.) | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |

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	3. **Briefly describe the effectiveness of the methods used to develop students’ chemical literature skills in chemistry courses.**Click here to enter text.
	4. **Briefly describe the opportunities that chemistry students have to develop chemical literature skills outside of chemistry courses.**Click here to enter text.
	5. **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. |
| General Education Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| 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 methods used to develop students’ problem-solving skills in chemistry courses.**Click here to enter text.
	2. **Briefly describe the methods used to assess students’ problem-solving skills in chemistry courses.**Click here to enter text.
	3. **Briefly describe the effectiveness of the methods used to develop students’ problem-solving skills in chemistry courses.**Click here to enter text.
	4. **Briefly describe the opportunities that chemistry students have to develop problem-solving skills outside of chemistry courses.**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. |
| 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. |
| General Education Chemistry | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| 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. |

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	4. **Briefly describe the opportunities that chemistry students have to develop communication skills outside of chemistry courses.**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. |
| Chemistry for Health Science Majors | 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. |
| Other (specify): Click here to enter text.) | Choose an item. | Choose an item. | Choose an item. | Choose an item. |

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	3. **Briefly describe the effectiveness of the methods used to develop students’ teamwork and leadership skills in chemistry courses.**Click here to enter text.
	4. **Briefly describe the opportunities that chemistry students have to develop teamwork and leadership skills outside of chemistry courses.**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. |
| 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. |
| Other (specify): Click here to enter text.) | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |

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	2. **Briefly describe the methods used to assess students’ ethics skills in chemistry courses.**Click here to enter text.
	3. **Briefly describe the effectiveness of the methods used to develop students’ ethics skills in chemistry courses.**Click here to enter text.
	4. **Briefly describe the opportunities that chemistry students have to develop ethics skills outside of chemistry courses.**Click here to enter text.

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

 Click here to enter text.