

Goals for Student Learning in Chemistry

Upon completion of a B.S. in Chemistry or Chemistry/Biosciences UH Hilo, graduates will be able to:

1. Explain and utilize a fundamental understanding of analytical, inorganic, instrumental, organic and physical chemistry—embedded tests.
2. Communicate a basic understanding of physics and its connection with chemistry—embedded tests.
3. Apply differential and integral calculus in solving scientific problems—embedded tests.
4. Use statistical methods to analyze and interpret data—embedded tests.
5. Exhibit basic chemistry laboratory skills and techniques—embedded tests.
6. Explain and utilize an understanding of the relationship of chemistry and the environment—embedded tests.
7. Explain and utilize an understanding of how chemistry informs biology/ health sciences/ agriculture—embedded tests.
8. Productively participate in chemical research—Department Rubric (see below).
9. Engage in scientific inquiry—Department Rubric (see below).
10. Independently prepare and present scientific findings or research at a seminar—Department Rubric (see below).

The table on next pages correlates the level of each specific learning outcome to each course required by chemistry majors. The key for the table is as follows: I – Introducing. D – Developing. M – Mastering. NA – Not Applicable.

SLO:	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
COURSE	Explain and utilize a fundamental understanding of analytical, inorganic, instrumental, organic and physical chemistry.	Communicate a basic understanding of physics and its connection with chemistry.	Apply differential and integral calculus in solving scientific problems.	Use statistical methods to analyze and interpret data.	Exhibit basic chemistry laboratory skills and techniques .	Explain and utilize an understanding of the relationship of chemistry and the environment.	Explain and utilize an understanding of how chemistry informs biology/ health sciences/ agriculture.	Productively participate in chemical research.	Engage in scientific inquiry.	Independently prepare and present scientific findings or research at a seminar.
PHYS 151 & 152 or 170 & 272	NA	I	I	NA	NA	NA	NA	NA	NA	NA
PHYS 151L & 152L or 170L & 272L	NA	I	I	I	NA	NA	NA	NA	I	NA
CHEM 161 & 162	I	NA	I	NA	NA	NA	I	NA	NA	NA
CHEM 161L & 162L	I	NA	NA	I	I	NA	NA	NA	I	NA
CHEM 241 & 242	I, D	I	NA	NA	NA	NA	I, D	NA	NA	NA
CHEM 241L & 242L	I, D	NA	NA	I	I, D	NA	I	NA	I	NA
MATH 241 & 242	NA	NA	I, D	NA	NA	NA	NA	NA	NA	NA
CHEM 274	I	D	I	I, D	NA	NA	I, D	NA	NA	NA
CHEM 274L	I	D	NA	I, D	D	NA	I, D	NA	I	NA
CHEM 320	D	NA	NA	NA	NA	NA	D	I	I	I
CHEM 350	D, M	D	D	NA	NA	NA	D	NA	NA	I
CHEM 350L	D, M	D	NA	D	D	NA	D	NA	I, D	I, D
CHEM 351 & 352	D, M	D, M	D	NA	NA	NA	I	NA	NA	I
CHEM 351L & 352L	D, M	D, M	NA	D	D	NA	I	NA	I, D	I, D
CHEM 360	I, D	I	NA	I	NA	I, D	D	I	I, D	I, D
CHEM 421	M	NA	NA	NA	NA	NA	D	I	I	I
CHEM 431	D, M	D	NA	D	NA	NA	D	NA	NA	NA
CHEM 431L	D, M	D	NA	D	D	NA	D	I, D	I, D	D
CHEM 487	D, M	I	NA	NA	NA	I, D	D, M	I, D	I, D	I, D
CHEM 495 A/B	D	D	NA	NA	NA	NA	NA	I, D	D, M	D, M

Rubric for PLOs 8-10: Poster Presentations

Scale	Oral Presentation (Oral Communication)	Written Presentation of Research	Visual Presentation	Documentation of Sources; Quality of Sources (Information Literacy)	Prose; Spelling and Grammar (Written Communication)
Mastery	Narration and/or answering of questions is engaging, thorough, and add greatly to the presentation	<ul style="list-style-type: none"> • <i>Prominently</i> positions title/author of paper • <i>Thoroughly</i> but <i>concisely</i> presents main points of introduction, hypotheses/propositions, results, & conclusions in a well-organized manner 	<ul style="list-style-type: none"> • Visually appealing; elements are well spaced and not cluttered; colors and characters enhance readability • Uses font size & variation which facilitate the organization, readability, and presentation of the research • Graphics (graphs, charts) are engaging and enhance the text • Content is arranged in an engaging and organized manner; reader can easily follow the flow of text 	Citation of sources is complete and accurate	Prose is academic and without any errors in syntax or spelling
Competent	Narration and/or answering of questions is adequate and adds to presentation	<ul style="list-style-type: none"> • Contains title/authors of paper • Adequately presents main points of introduction, hypotheses/propositions, results, & conclusions in a relatively organized manner 	<ul style="list-style-type: none"> • Visual presentation is adequate; colors and patterns not fully utilized to add to presentation • Uses font size & variation but may not be well placed or planned for optimal effect • Graphics (graphs, charts) are minimally used • Content is arranged in a somewhat organized manner 	Cites sources but may include a few minor errors	Prose is mainly academic but may contains a few errors, awkward phrases, or strange word choice
Beginning	Narration and/or answering of questions is somewhat lacking or reflects poor preparation	<ul style="list-style-type: none"> • Title/authors of paper not fully articulated • Main points of introduction, hypotheses/propositions, results, &/or conclusions are either not well organized or are missing 	<ul style="list-style-type: none"> • The overall poster is not appealing, cluttered, and may show a sloppy/rushed finish • Presentation is hard to read and may be hard to follow due to poor organization of materials/text • Graphics may be missing, inaccurate, and/or irrelevant 	Sources are missing and/or citation format is completely erroneous	Excessive spelling and grammatical errors