

## Program Assessment Plan

BS in Chemistry

2/3/2025

Learning Objectives:

Students will have:

- 1) Foundational technical knowledge. They will be able to critically analyze and respond to chemical questions in relevant areas:
  - a) Analytical chemistry
  - b) Biochemistry
  - c) Organic chemistry
  - d) Inorganic chemistry
  - e) Physical chemistry

For students in the concentrations, they will additionally have foundational technical knowledge in:

- f) Environmental chemistry (Environmental Chemistry Concentration)
  - g) Forensic chemistry (Forensic Chemistry Concentration)
  - h) Medicinal chemistry (Medicinal Chemistry Concentration)
- 2) Problem-solving skills. They will be able to:
  - a) Explain the rationale behind chemistry experiments
  - b) Demonstrate technical skills to carry out experiments in the laboratory or computer and to record results
  - c) Analyze data using qualitative and quantitative methods, including computer software, and apply critical reasoning to draw appropriate conclusions
- 3) Safety skills. They will be able to:
  - a) Describe and apply safe laboratory practices, including proper disposal techniques.
  - b) Recognize and minimize potential hazards in the laboratory.
- 4) Chemical literature skills. They will be able to:
  - a) Retrieve information from the chemical literature using on-line, interactive database-searching tools, including SciFinder
  - b) Explain and critically evaluate technical articles
- 5) Communication skills. They will be able to clearly communicate scientific ideas in both oral and written forms.
- 6) Broader awareness. Students will be able to explain the role of chemistry in contemporary societal and global issues.

## Curriculum map

required class	LO 1 a	LO 1 b	LO 1 c	LO 1 d	LO 1 e	LO 1 f	LO 1 g	LO 1 h	LO 2	LO 3	LO 4	LO 5	LO 6
CHEM 100											I	I	I
CHEM 124	I		I	I	I				I	I		X	
CHEM 125	D		X	X	X				D	D		X	
CHEM 237		X	I						D	D		X	
CHEM 239		X	A										
CHEM 240			A						D	D		X	
CHEM 247	D								D	D		X	
CHEM 321	A								A	A		X	
CHEM 343					D								
CHEM 344					A				A	A		X	
CHEM 415				A									
CHEM 416				A					A	A			
CHEM 451											A	A	A
CHEM 452 or MATH 225 or DS 151													
CHEM 456								A					
CHEM 463	A												
CHEM 467								A					
CHEM 472						A							
CHEM 473						A							
CHEM 475							A						
CHEM 476							A						
CHEM 485													A
CHEM XXX													
CHEM XXX													
BIOL 107 or BIOL 115		I											
BIOL 401 or BIOL 403		A											
MATH 151													
MATH 152													
MATH 251 or MATH 252													
PHYS 123													
PHYS 221													

### Yearly Assessment Plans

AY F24/S25 – We will assess LO 1 c, 1 f, and 2

AY F25/S26 – We will assess LO 1 a, 1 g, and 4

AY F26/S27 – We will assess LO 1 d, 1 h, and 3

AY F27/S28 – We will assess LO 1 b, 1 e, 5, and 6

(repeat every 4 years)

#### Describe Assessment Report Dissemination and Continuous Improvement Plans

Faculty who teach courses that are being assessed that academic year will collect articles to be assessed (ex: final exam, final presentation rubric). They will turn the articles into the assessment committee. The assessment committee will collect articles by 1 month prior to the deadline. Assessment committee will determine cutoff for students who do not meet expectations of the LO, meet expectations of the LO, and those who are proficient in the LO.

Example:

	Does not meet expectations (D or 1)	Meets Expectations (M or 3)	Proficient (P or 5)
LO 1 c) Foundational Organic Chemistry	Students are unable to answer more than 60% of foundational organic chemistry questions	Students are able to answer more than 60% of foundational organic chemistry but no more are missing a couple key concepts	Students are able to answer over 90% of foundational organic chemistry questions, demonstrating a thorough understanding of foundational organic chemistry

Assessment committee will then produce the report.