



WILLIAM WOODS
UNIVERSITY

Chemistry Annual Assessment 2021-2022

Table of Contents

Chemistry Annual Assessment 2021-2022	1
Annual Assessment 2021-2022.....	3
Chemistry Minor.....	3
Program Profile	3
Program Assessment.....	4
Curriculum Map	5
Assessment Findings	6
Program Activities	6
Appendix	8

Annual Assessment 2021-2022

Chemistry Minor

Program Profile

Program Mission Statement

Please insert your program mission statement here.

The purpose of the Chemistry minor is to furnish students with the broad array of fundamental chemical concepts, techniques, and interdisciplinary insights most pertinent to new scientists and pre-professional students.

Program Data

Delivery Method

Traditional On Campus (selected)
 Online
 Hybrid

	Student Majors	Student Minors
2020-2021	-	19
2021-2022	-	20

Concentrations 2020-2021

If your program contains concentrations, please list the concentrations and the number of students identified within each concentration.

Concentrations 2021-2022

If your program contains concentrations, please list the concentrations and the number of students identified with each concentration.

Student Demographics

What are the program goals for student retention, persistence and degree completion? What do the persistence numbers mean to the faculty in the program? Are the persistence numbers what the program expected? If not, how could the numbers improve?

One goal for the chemistry minor is to deliver consistent education from main faculty in support of other degree programs. The chemistry minor is one that is expected to grow with consistency and advising. Biology students within the pre-med concentration are usually one class away from obtaining the minor, but many of them do not realize this. With consistent messaging and course offerings, more students will understand and see the advantage to this minor program. With a second covid year, I think that some of this messaging was lost as some classes were hybrid and no courses were offered in their regular location. With an improved budget for the fiscal year, previously problems in the laboratory (chemical supply and laboratory experiments that could be performed) are minor and students have more access to what they need to be successful.

Optimal Enrollment

Considering current human and physical resources, what is the optimal enrollment for the program?

25

Is the Program Externally Accredited

Yes
 No (selected)

External Accreditation

Name the Accrediting Agency or entity including the last review/approval. Is there an accrediting body for the field of study? If yes, what is the name of the group. Is the program seeking accreditation? If no, why?

We would have to have 2 full time chemistry faculty with American Chemical Society certification (~\$450/annually) to obtain external accreditation.

Admissions and Marketing Materials

Reflect on the current marketing materials used for the program. Please attach screen shots of the website or any material you are referencing in this section. What changes, if any, should be made to the material? Are there recommendations on how to modify the current material?

We still have no marketing materials. I would like to have a half page (long wise) handout with one side discussing how minors can help set you apart on medical/dental/graduate school applications and on the back side specifics about the chemistry minor. Proposing the minor in support of other programs and as an advantage for competitive graduate programs are a few of the main reasons for this minor.

Marketing Material

Program Assessment

Standard/Outcome

Identifier	Description
WWU2021.1	Knowledge and Scholarship: Demonstrate current knowledge and educational expertise in an academic or professional discipline engaging students in the process of academic discovery.

Additional Standards/Outcomes

Identifier	Description
CHM.1	Demonstrate a fundamental understanding of chemical concepts relating to all branches of chemistry, including analytical, organic, physical, inorganic, and biochemistry.
CHM.2	Demonstrate a thorough understanding of the periodic table of elements and how it can be used to determine trends in chemical reactivity and stability.
CHM.3	Logically apply the scientific method to everyday situations in order to facilitate an understanding of the world around us.
CHM.4	Integrate empirical evidence with experimental data, such that solid conclusions can be formulated.

Alignment to the University Objectives

Please discuss the Program alignment to the University Objectives. Specific evidence is not to be uploaded, but discussion is expected of the assignment, and intentionality of how the objective is met with program curriculum.

As stated in the William Woods University mission statement, "William Woods University promotes a student-centered learning environment valuing inclusion, creativity, and intellectual inquiry. Focused on professions-oriented education, we prepare learners for success." The chemistry minor aligns with this statement in all regards but focuses on the student-centered learning environment where students are active participants in their learning.

General Education Alignment to Program

How do the General Education criteria align with Program Objectives? What courses within the program build upon skills learned from general education courses (please list the program course and the general education criteria)? The General Education clusters are attached to the document below.

Students who complete the Chemistry minor are typically better-versed as critical analysts and practitioners of quantitative inquiry; these skills are vital to successful completion of the courses and lab work. Successful students will also exercise creative expression and a focus on society & the individual via their small-scale research on topics relevant to chemistry in the wider world.

NSSE Objectives Discussed Fall 2019**Program Alignment to NSSE Objectives**

How did the program integrate the three NSSE objectives determined by the faculty in the fall of 2019? The objectives were to 1) integrate more interdisciplinary work within the curriculum, 2) to connect learning to societal problems or issues, and 3) to examine the strengths and weaknesses of their (students) own views on a topic or issue. Please articulate which courses, and what assignments were assigned and how the work was assessed. Were the assignments successful? What could have made them more successful?

Each lecture class (Chm 114, 124, 314 and 324) was assigned a paper where topics from chemical and engineering news had to be discussed. The students spent a class period flipping through 5 years of C&EN journals to select their topic. They were asked to review the article and write a "blog post" about the article, including updates to the research, debate, issues and recent news. The blog post idea allows for the cross over to journalism and science communication. The news articles allowed the students to think outside of the textbook and see real societal issues within the given topic.

The first assignment given to meet NSSE objectives was a great success with all students completing the assignment and nearly all of them scoring high on the rubric.

Curriculum Map

A - Assessed
R - Reinforced
I - Introduced
M - Master

Standard Chemistry Minor Curriculum Map

	CHM 114	CHM 115	CHM 116	CHM 124	CHM 125	CHM 314	CHM 315	CHM 324	CHM 325	CHM 440	CHM 441
CHM.1 Demonstrate a fundamental understanding of chemical concepts relating to all branches of chemistry, including analytical, organic, physical, inorganic, and biochemistry.	I	I		A, R		R		R, A	M		
CHM.2 Demonstrate a thorough understanding of the periodic table of elements and how it can be used to determine trends in chemical reactivity and stability.	I	I		R, A		R		R, A	M		
CHM.3 Logically apply the scientific method to everyday situations in order to facilitate an understanding of the world around us.	I	I		R, A		R		R, A	M		
CHM.4 Integrate empirical evidence with experimental data, such that solid conclusions can be formulated.	I	I		R, A		R		R, A	M		

Changes to Curriculum

Are there any changes made to the curriculum map for this academic year? If so, please describe the program changes made along with the rationale for why and the impact the change should have on student learning?

We are not making changes from last year. I do not think we have had time to analyze regularity during the covid year. No changes will be made until after the next academic term.

Assessment Findings

Assessment Findings for the Assessment Measure level for Standard Chemistry Minor Curriculum Map

Analysis of the Assessment Process

Describe your assessment process; clearly articulate how the program uses coursework and or Student Performance Review for program wide assessment. Note any changes that occurred to the process since the previous year. Discuss what activities were successful and which ones were not as helpful and why. Please include who met to discuss the changes (unless you are a program of one person) and when you met. – Include a discussion on the process for collection and analysis of program data.

The chemistry minor uses course work for program assessment and does not participate in performance days. Students have 3 assignments that serve as assessment tools. A PowerPoint presentation, essay (blog post) and form worksheet. The PowerPoint presentation had been given orally previously but transitioned to an online submission. The student not only has to organize slides that present their data and information effectively but now has to fill in the note section, like they were preparing to give it. I found transitioning to this type of assignment gave drastically better performance from students with more information covered. Because I was analyzing their notes as well now, the students stepped up their work. All PowerPoints were posted to a discussion forum for other students to review. We will keep this new type of PowerPoint assignment as standard moving forward. The same holds true for Fall 2021, but more of the students looked to science in general than chemistry specific and I will refine the language to push for the actual subject matter to be put forth more with quantifiable data.

Improvement Narrative List

Program Activities

Student Performance Review

Describe the department Student Performance Review activities if not already articulated. Please describe the nature of the assessments conducted as well as the process of assessment happening on these two days. Include the schedule of assessment day for your program. What does the data and outcomes tell you? What changes will you make as a result of the data? What areas are successful for the program?

Student Performance Review Schedule

Upload the program schedule for students during Performance Reviews.

Senior Showcase/Symposium

Describe program activities used to highlight Senior achievement. What benefit does the program gain from the activities? What if any assessment of students happens during this event?

Tools used for Assessment

Upload rubrics or other Assessment based tools used by the program that are important to the assessment process.

Service Learning

Does the Program include projects/ course content that uses the philosophy of service learning?

Yes

No

Service Learning Component

If so, how is service learning infused in the coursework within your department? Is service or community engagement in the program mission? Describe the Service-Learning Activities that your students and department engaged in this past year. How did the activities improve student learning? How did the activities benefit the community?

Co-Curricular and LEAD Events

Describe Co-Curricular and LEAD events sponsored by program faculty. This includes LEAD and other events meant to engage students and foster learning outside of the classroom.

Student Accomplishments

Highlight special examples of student successes in the field (academic: mentor-mentee, conference presentations, competitive internship, journal acceptance; extra-curricular: horse show championship, art exhibit). This is for any accomplishment a student achieved outside of course work or the normal expectation of student success.

Alumni Accomplishments

Please highlight special examples of any successes of recently graduated alumni (acceptance or graduation graduate school, employment or professional milestones).

Faculty Accomplishments

Highlight special examples of faculty success in the profession/field/content area. This is for any accomplishment of a faculty member that is research or professional in nature.

Appendix

Clear	3.000 Exceeds	2.000 Meets	1.000 Falls Below Expectations	N/A
Mission Statement Clearly Articulated weight: 1.000	✓ The mission statement for the program is insightful and forward thinking. It aligns with the University Mission and learning objectives showing a clear alignment between the University and the program.	✓ The mission statement for the program clearly articulated and aligned with the University mission.	✓ The mission statement is minimal at best.	✓ N/A
Comment:				
Reflection on Student Demographics, Retention, and Degree Completion Data weight: 1.000	✓ The program provides a detailed description on the enrollment, retention, persistence and degree completion numbers. The program provides new ideas on how to improve retention of their program students or articulates what they are currently doing to keep students in their program.	✓ The program provides a basic reflection on enrollment, retention, persistence, and degree completion data provided.	✓ The program does not reflect on enrollment, retention, persistence, and degree completion data in a detailed way.	✓ N/A
Comment:				
Marketing Materials weight: 1.000	✓ The program outlines the successes and needs in regards to marketing. Detailed suggestions on how to market the program and what niche areas that are program specific would benefit the marketing strategy.	✓ The program discussed the general marketing strategy for the program.	✓ The program provided little to no discussion on the marketing materials or approach to how to market the program.	✓ N/A
Comment:				
Alignment to University Objectives weight: 1.000	✓ The program provides a detailed explanation of how program courses align to the Institutional Objectives. This explanation details specific courses, or activities that coordinate with the intent of the Institutional Objectives.	✓ The program provides a basic explanation of how program courses align to the Institutional Objectives. This explanation provides a minimal understanding of how the program is aligned to the Institutional Objectives.	✓ The program provides little to no explanation of how program courses align to the Institutional Objectives.	✓ N/A
Comment:	Is aligned to the new mission			
General Education alignment clearly explained weight: 1.000	✓ The program provides a detailed explanation of the General Education criteria and how the basic skills learned are expanded upon in the program. Details include but are not limited to: specific courses, or activities that stretch the knowledge of the specific areas.	✓ The program provides a basic explanation of the General Education curriculum and how the skills learned are expanded in program courses.	✓ The program provides a minimal explanation of the General Education curriculum and how the skills learned are expanded in program courses.	✓ N/A
Comment:				
NSSE Objectives weight: 1.000	✓ The program provided a detailed listing of activities and assessments used within the program that focused on the identified NSSE objectives. The activities and assessments were divided out within the curriculum and impacted different cohort groups.	✓ The program provided a basic explanation of the activities and assessments used within the program that focused on the identified NSSE objectives.	✓ The program provided minimal explanation of the activities and assessments used within the program that focused on the identified NSSE objectives.	✓ N/A
Comment:				

<p>Curriculum Map alignment and changes weight: 1.000</p>	<p>✔ The curriculum map is detailed and complete. All Changes made to the curriculum map are detailed with supporting rationale for the decision..</p>	<p>✔ The curriculum map is complete. Changes made to the curriculum map are explained with some explanation as to why the changes were implemented.</p>	<p>✔ The curriculum map is not complete and little to no explanation on curricular changes was provided.</p>	<p>✔ N/A</p>
<p>Comment:</p>	<div style="border: 1px solid black; height: 40px;"></div>			
<p>Assessment Map weight: 1.000</p>	<p>✔ Assessment of objectives are spread out across the curriculum with a variety of assessment measures and each program objective is assessed a minimum of twice a year.</p>	<p>✔ Each objective is assessed a minimum of 2 times a year or an assessment rotation is explained so that all objectives are assessed. The assessments are not concentrated in one class.</p>	<p>✔ The assessment map is not complete or much of the assessment happens in only one course. Not all objectives are assessed annually, nor is a plan provided on assessment.</p>	<p>✔ N/A</p>
<p>Comment:</p>	<p>The assessment map needs to detail activities in order for assessment findings to be proposed.</p>			
<p>Data Driven Decision-making is explained weight: 1.000</p>	<p>✔ An overview of program assessment is provided with details on the specific successes and challenges from the year. A detailed review of how assessment was administered over the academic year is clearly outlined.</p>	<p>✔ A basic overview of program assessment is provided with some details on the successes and challenges from the year. A basic review of how assessment was administered over the academic year is outlined.</p>	<p>✔ A basic overview of program assessment is not provided with little to no discussion on the administration of assessment over the academic year.</p>	<p>✔ N/A</p>
<p>Comment:</p>	<p>the findings section of the report did not populate due to the Assessment map being incomplete.</p>			
<p>Documentation provided on assessment findings weight: 1.000</p>	<p>✔ The program uploads all rubric and support information to support the claims in the assessment findings along with detailed instructions on the assessment process and data analysis.</p>	<p>✔ The program uploads all rubric and support information to support the claims in assessment findings.</p>	<p>✔ The program did not upload the data to support assessment claims in the assessment findings.</p>	<p>✔ N/A</p>
<p>Comment:</p>	<div style="border: 1px solid black; height: 40px;"></div>			
<p>Analysis of Assessment weight: 1.000</p>	<p>✔ The program completed assessment findings for each component identified, and provided a comprehensive summary of each assessment measure identified in the report.</p>	<p>✔ The program completed the assessment findings for each component and provided a summary for each assessment measure.</p>	<p>✔ The program did not provide a completed assessment findings for each component, nor did they complete the summary for each measure.</p>	<p>✔ N/A</p>
<p>Comment:</p>	<p>Discussion is from previous report - not this year.</p>			
<p>Improvement narratives are selected with intentionality weight: 1.000</p>	<p>✔ The program identified Improvement Narratives that appear to move the program forward and see the bigger picture than only the specific program curriculum options</p>	<p>✔ The program used the provided Improvement Narratives and selected options that made sense to the objectives and issues within the assessment.</p>	<p>✔ The program did not use any improvement narratives, or the ones chosen are not aligned with assessment results.</p>	<p>✔ N/A</p>
<p>Comment:</p>	<div style="border: 1px solid black; height: 40px;"></div>			

<p>Student Performance Review weight: 1.000</p>	<p>✔ The program described and provided a detailed account of Student performance Review activities. Data evidence provided and detailed.</p>	<p>✔ The program provided the schedule and a brief description of Student Performance Review with data of the results.</p>	<p>✔ The program did not provide complete explanation on Student Performance Review nor did they provide data results.</p>	<p>✔ N/A</p>
<p>Comment:</p>	<p>This is a minor program so they are required to complete this component.</p>			
<p>Senior Showcase weight: 1.000</p>	<p>✔ The program had all senior students participate in Senior Showcase and provided a detailed explanation of their expectation and the presentations presented.</p>	<p>✔ The program described the Senior showcase activities and provided some evidence of what was presented.</p>	<p>✔ Little to no content of Senior showcase was provided.</p>	<p>✔ N/A</p>
<p>Comment:</p>	<p>This is a minor program so they are required to complete this component.</p>			
<p>Co Curricular and LEAD activities weight: 1.000</p>	<p>✔ The program detailed the activities of LEAD and other co-curricular programming that was provided throughout the year. They provided numerous events for students.</p>	<p>✔ The program provided a listing of LEAD events and activities provided.</p>	<p>✔ The program provided little to no description of the Co-curricular activities provided throughout the year.</p>	<p>✔ N/A</p>
<p>Comment:</p>				
<p>Faculty, alumni, and Student accomplishments weight: 1.000</p>	<p>✔ The program provided detail updates on successes on Students, Alumni and Faculty with added information explaining the kinds of success that were experienced.</p>	<p>✔ The program provided a listing of information on Students, Alumni, and faculty accomplishments.</p>	<p>✔ The program provided little to no data on students, alumni, faculty accomplishments.</p>	<p>✔ N/A</p>
<p>Comment:</p>				