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**WILLIAM WOODS  
UNIVERSITY**

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**Chemistry Annual Assessment 2019-2020**

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## Annual Assessment 2019-2020

### 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 young scientists.

#### Program Data

##### Delivery Method

Traditional On Campus (selected)  
 Online  
 Hybrid

	Majors	Minors
2018-19	N/A	26
2019-2020	N/A	21

#### 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 your persistence numbers what you expected? If not, how could the numbers be improved? What is the optimal enrollment for the program?*

Consistent education and faculty presence will help the chemistry minor. Some students do not have a good chemistry general education from multiple professors in the last few years and do not feel comfortable moving forward with a minor. I believe the number of students that declare a chemistry minor will increase with consistency.

#### 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?*

NA

#### Marketing Materials

*Please reflect on the current marketing materials used for the program. Detail what documents you are reviewing and attach a screenshot of any webpages or materials that you cannot include as a document. What changes, if any should be made to the material? Are there recommendations for how or where to market the program?*

There are not currently marketing materials beyond the webpage. I think the chemistry minor could be focused towards pre-med, pre-dental and pre-pharmacy students as a way to bolster their CVs and applications. I would like to have a marketing sheet made for student visitors to campus and for meet your major events.

#### **Marketing Material**

### **Program Assessment**

#### **Standard/Outcome**

<b>Identifier</b>	<b>Description</b>
<b>WWU2016.1</b>	Major Field Competence: Students will demonstrate excellence in an academic or professional discipline, and engage in the process of academic discovery.
<b>WWU2016.2</b>	Ethics: Students will exhibit values and behaviors that address self- respect and respect for others that will enable success and participation in the larger society.
<b>WWU2016.3</b>	Self-Liberation: Students will develop an honest understanding and appreciation of themselves and others resulting in an ability to make individual decisions.
<b>WWU2016.4</b>	Lifelong Education: Students will possess an intellectual curiosity and desire for continual learning both within and beyond formal education in preparation for participation in a global society.

#### **Additional Standards/Outcomes**

<b>Identifier</b>	<b>Description</b>
<b>CHM.1</b>	Demonstrate a fundamental understanding of chemical concepts relating to all branches of chemistry, including analytical, organic, physical, inorganic, and biochemistry.
<b>CHM.2</b>	Demonstrate a thorough understanding of the periodic table of elements and how it can be used to determine trends in chemical reactivity and stability.
<b>CHM.3</b>	Logically apply the scientific method to everyday situations in order to facilitate an understanding of the world around us.
<b>CHM.4</b>	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. We do not need an artifact for each objective, but a discussion on how the program uses the Institutional Objectives as an anchor for their program curriculum.*

#### **General Education Alignment to Program**

*How do the General Education criteria align with the Program Objectives? What courses within your program build upon skills learned in general education courses (please list the program course and the general education criteria). The General Education clusters are: Critical Analysis, Creative Expression, Quantitative Inquiry, and Society & the Individual. See attached for more detailed breakdown.*

Students who complete the Chemistry minor are necessarily better-versed as critical analysts and practitioners of quantitative inquiry; these skills are vital to successful completion of the courses and labwork. 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. Typically such research is presented in the form of essays.

## NSSE Objectives Discussed Fall 2019

### Program Alignment to NSSE Objectives

How did your program integrate the three NSSE objectives determined by the faculty this fall. 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
<b>CHM.1</b> 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		
<b>CHM.2</b> 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		
<b>CHM.3</b> 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		
<b>CHM.4</b> 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?*

## **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 is using course work and or assessment day activities for program assessment. Note any changes that occurred to that process since the previous year. Discuss what activities were successful at assessment 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.*

#### **Improvement Narrative List**

## **Program Activities**

### **Student Performance Review**

*Describe the department assessment day activities if not already described previously. Please articulate the nature of the assessments are conducted, explain the process for assessment that happens 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?*

As chemistry is a minor, there were no program activities for assessment day. All declared chemistry minors are currently working towards a biology degree and participated in Biology events.

### **Student Performance Review Schedule**

*Upload the program schedule for students during Performance Reviews.*

### **Senior Showcase**

*Describe program Senior Showcase activities if not detailed previously in the report? What benefit does the program gain from the activities? What if any assessment of students happens during this event? What changes if any will occur due to what is learned by faculty on Senior Showcase?*

### **Assessment Rubrics**

*Upload rubrics used for Senior Showcase or Student Performance Reviews for student assessment.*

### **Service Learning**

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

Yes

No (selected)

### **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?*

**LEAD Events**

*Highlight lead events sponsored by program faculty that are connected to program or general education objectives for the past academic year. Include a total number of lead events program faculty sponsored.*

Dr. Ellen Moore presented a forensic chemistry LEAD event during Fall of 2019 about the birth of modern forensic science.

**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 accomplishments that a student achieved outside of course work or the normal expectations of student success.*

**Alumni Accomplishments**

*Please highlight special examples of any successes of recent graduated alumni (acceptance or graduation graduate school, employment or professional milestones. Include recent graduates.*

Working with Biology faculty to make contact with any alumni.

**Faculty Accomplishments**

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

## Assessment Rubric

	3.000 <b>Exceeds</b>	2.000 <b>Meets</b>	1.000 <b>Falls Below Expectations</b>	N/A
Mission Statement Clearly Articulated weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 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.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The mission statement for the program clearly articulated and aligned with the University mission.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The mission statement is minimal at best.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> N/A</li> </ul>
Comment:				
Reflection on Retention weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provides a detailed description on the retention 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.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provides a basic reflection on the retention data provided.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program does not reflect on retention data in a detailed way.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> N/A</li> </ul>
Comment:	Minor programs are not provided detailed retention data so it is hard for them to reflect on this information and make meaningful connections.			
Defines External Accreditation Standards weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provides a detailed explanation of the accreditation organizations within the field along with all the timeline and supplemental information required for accreditation.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provides a basic explanation of the accreditation organizations in the field.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program fails to provide any accreditation information.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> N/A</li> </ul>
Comment:				
General Education alignment clearly explained weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provides a detailed explanation of the General Education criterial 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.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provides a basic explanation of the General Education curriculum and how the skills learned are expanded in program courses.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provides a minimal explanation of the General Education curriculum and how the skills learned are expanded in program courses.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> N/A</li> </ul>
Comment:				
Curriculum Map alignment weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The curriculum map is detailed and complete.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The curriculum map is complete</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The curriculum map is not complete</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> N/A</li> </ul>
Comment:				
Assessment of Objectives weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 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.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 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.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 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.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> N/A</li> </ul>
Comment:	the details were not completed within the Assessment map. No content was provided to describe the kind of assessment for the two classes marked as assessment based.			
Data Driven Decision-making is explained weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Curricular and assessment changes are articulated and validated through data based decisions. Faculty discuss the data that lead to curricular decisions being made.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Curricular and assessment decisions are made based on data provided in assessment, but detailed alignment is not provided as justification for the change.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Changes are proposed and brought forth with little explanation on the data included in the decision, if data was included in the decision.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> N/A</li> </ul>
Comment:	the assumption is that the assessment was interrupted by the COVID-19 situation in the fall and the fact that the faculty member was a first year faculty with the program.			

Documentation provided on assessment findings weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 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.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program uploads all rubric and support information to support the claims in assessment findings.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program did not upload the data to support assessment claims in the assessment findings.</li> </ul>	<input checked="" type="checkbox"/> N/A
Comment:				
Analysis of Assessment is complete weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program completed assessment findings for each component identified, and provided a comprehensive summary of each assessment measure identified in the report.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program completed the assessment findings for each component and provided a summary for each assessment measure.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program did not provide a completed assessment findings for each component, nor did they complete the summary for each measure.</li> </ul>	<input checked="" type="checkbox"/> N/A
Comment:				
Improvement narratives are selected with intentionality weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program identified Improvement Narratives that appear to move the program forward and see the bigger picture than only the specific program curriculum options</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program used the provided Improvement Narratives and selected options that made sense to the objectives and issues within the assessment.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program did not use any improvement narratives, or the ones chosen are not aligned with assessment results.</li> </ul>	<input checked="" type="checkbox"/> N/A
Comment:				
Student Performance Review weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program described and provided a detailed account of Student performance Review activities. Data evidence provided and detailed.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provided the schedule and a brief description of Student Performance Review with data of the results.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program did not provide complete explanation on Student Performance Review nor did they provide data results.</li> </ul>	<input checked="" type="checkbox"/> N/A
Comment:	This is a Minor program and does not have a requirement to participate in this activity.			
Senior Showcase weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program had all senior students participate in Senior Showcase and provided a detailed explanation of their expectation and the presentations presented.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program described the Senior showcase activities and provided some evidence of what was presented.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Little to no content of Senior showcase was provided.</li> </ul>	<input checked="" type="checkbox"/> N/A
Comment:	This is a Minor program and does not have a requirement to participate in this activity.			
Co Curricular activities weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program detailed the activities of LEAD and other co-curricular programming that was provided throughout the year. They provided numerous events for students.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provided a listing of LEAD events and activities provided.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provided little to no description of the Co-curricular activities provided throughout the year.</li> </ul>	<input checked="" type="checkbox"/> N/A
Comment:				
Faculty, alumni, and Student accomplishments weight: 1.000	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provided detail updates on successes on Students, Alumni and Faculty with added information explaining the kinds of success that were experienced.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provided a listing of information on Students, Alumni, and faculty accomplishments.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The program provided little to no data on students, alumni, faculty accomplishments.</li> </ul>	<input checked="" type="checkbox"/> N/A
Comment:				