

Assessment Plan -- Program Level

Program: Chemistry, BS
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Program Mission Statement: The mission of the program is to prepare students for pursuing careers in chemistry or other related fields, either directly or after further education. This is achieved through ensuring an understanding of, and an ability to use and apply the fundamental principles and methods of chemistry, within an overall liberal arts education.

Program Outcomes	Is this a student learning outcome? (2-8 max)	Learning Opportunities: What courses or experiences provide students with the (primary) opportunity to achieve this outcome?	Assessment Methods/Measures: List the direct and indirect methods you will use to measure how well students are achieving this outcome.	Target Levels/ Benchmarks	When Will Assessment Be Conducted and Reviewed?	How Will Results Be Used and Communicated?
Students who complete this program should have the ability to:						
Demonstrate an understanding of and an ability to use and apply chemical theories and principles	✓	200 to 400 level chemistry courses	Direct: <ul style="list-style-type: none"> Chem 315 (Biochemistry), two semester examinations with embedded questions Chem 402, (Physical Chemistry), comprehensive final examination, encompassing embedded questions Chem 406, (Organic Chemistry), comprehensive final examination, encompassing embedded questions Chem 408, (Inorganic Chemistry), comprehensive final examination, encompassing embedded questions Indirect: <ul style="list-style-type: none"> Exit survey 	<ul style="list-style-type: none"> 70% of students achieve 70% of the grade of the two exams 70% of students achieve 70% of the grade on the exam 70% of students achieve 70% of the grade on the exam 70% of students achieve 70% of the grade on the exam 70% of students indicate that they have achieved this outcome. 	Yearly, fall semester.	Results will be communicated via a report in June of every year, and results discussed in departmental meetings the following fall semester
Demonstrate an ability to identify and represent chemical structures, understanding and predicting their properties, as well as the roles of different chemical forces in	✓	200 to 400 level chemistry courses	Direct: <ul style="list-style-type: none"> Chem 315 (Biochemistry), two semester examinations with embedded questions Chem 406, (Organic Chemistry), a specific embedded question in the final examination Chem 408, (Inorganic Chemistry), 	<ul style="list-style-type: none"> 70% of students achieve 70% of the grade of the two exams 70% of students achieve 70% of the grade for the specific question 70% of students achieve 70% 	Yearly, fall semester.	

determining the chemical and physical properties of substances			<p>comprehensive final examination, encompassing embedded questions</p> <p>Indirect:</p> <ul style="list-style-type: none"> Exit survey 	<p>of the grade on the exam</p> <ul style="list-style-type: none"> 70% of students indicate that they have achieved this outcome. 	
Demonstrate an understanding of and proficiency in various chemical laboratory techniques for qualitative and quantitative experimental determinations, following laboratory safety practices	✓	All chemistry laboratories	<p>Direct:</p> <ul style="list-style-type: none"> Chem 311 lab, 315 lab, 318L, 412L and 416L: performance on experimental investigations, measured by the in-lab work grade and/or laboratory report grade <p>Indirect:</p> <ul style="list-style-type: none"> Exit survey 	<ul style="list-style-type: none"> 70% of students achieve 70% of the grade of the experimental performance 70% of students indicate that they have achieved this outcome 	Yearly, fall semester.
Collect, report, analyze and interpret data honestly and ethically	✓	All chemistry laboratories	<p>Direct:</p> <ul style="list-style-type: none"> Chem 311 lab, 315 lab, 318L, 412L and 416L: performance on laboratory reports* <p>Indirect:</p> <ul style="list-style-type: none"> Exit survey 	<ul style="list-style-type: none"> 70% of students achieve 70% of the grade of the laboratory reports 70% of students indicate that they have achieved this outcome 	Yearly, fall semester.
Understand, process and use scientific literature	✓	400 level chemistry courses	<p>Direct:</p> <ul style="list-style-type: none"> Chem 315 (Biochemistry), term paper* Chem 402, (Physical Chemistry), term paper* Chem 406, (Organic Chemistry), semester papers* Chem 406, (Organic Chemistry), term paper* Chem 408, (Inorganic Chemistry), term paper* <p>Indirect:</p> <ul style="list-style-type: none"> Exit survey 	<ul style="list-style-type: none"> 70% of students achieve 80% of the grade of the paper 80% of students achieve 70% of the grade of the paper 80% of students achieve 70% of the grade of the paper 80% of students achieve 70% of the grade of the paper 80% of students achieve 70% of the grade of the paper 70% of students indicate that 	Yearly, fall semester.

Demonstrate professional and ethical conduct, critical, interpersonal and communication skill, as well as a commitment to life-long learning	✓	400 level chemistry courses	<p>Direct:</p> <ul style="list-style-type: none"> • Chem 315 (Biochemistry), oral presentation of term paper* • Chem 402, (Physical Chemistry), oral presentation of term paper* • Chem 406, (Organic Chemistry), oral presentation of term paper* • Chem 408, (Inorganic Chemistry), oral presentation of term paper* <p>Indirect:</p> <ul style="list-style-type: none"> • Exit survey • Alumni survey 	<p>they have achieved this outcome.</p> <ul style="list-style-type: none"> • 70% of students achieve 80% of the grade of the presentation • 80% of students achieve 70% of the grade of the presentation • 80% of students achieve 70% of the grade of the presentation • 80% of students achieve 70% of the grade of the presentation • 70% of students indicate that they have achieved this outcome. • 70% of alumni indicate that they have achieved this outcome. 	Yearly, fall semester. Alumni survey every five years.
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* Evaluation based on specifically set rubrics