SAINT LOUIS UNIVERSITY.

Program-Level Assessment: Annual Report

Program: MS	Department: Chemistry
Degree or Certificate Level: Graduate	College/School: Arts and Sciences
Date (Month/Year): 6/2020	Primary Assessment Contact: Scott Martin and Dana Baum
In what year was the data upon which this report is based collected? 2019 – 2020 Academic Year	
In what year was the program's assessment plan most recently reviewed/updated? 2018	

1. Student Learning Outcomes

Which of the program's student learning outcomes were assessed in this annual assessment cycle?

Outcome 2: Use standard search tools and retrieval methods to obtain information about a topic, substance, technique, or an issue relating to chemistry and assess relevant studies from the chemical literature.

Outcome 3: Communicate scientific findings from literature and original findings from the student's own advanced research in written publications and oral presentations.

Outcome 4: Acquire the basic tools, including chemical practices and theories, needed to conduct advanced chemical research. Students will become proficient in their specialized area of chemistry and complete an advanced research project.

Outcome 5: Adhere to accepted ethical and professional standards in chemistry.

2. Assessment Methods: Student Artifacts

Which student artifacts were used to determine if students achieved this outcome? Please identify the course(s) in which these artifacts were collected. Clarify if any such courses were offered a) online, b) at the Madrid campus, or c) at any other off-campus location.

For Outcome 2, the final thesis was used for assessment by asking the chair of the committee to fill out a rubric. We had no MS students complete their degree this year, so no data was collected.

For Outcome 3, performance on a class project/presentation was collected. Assessment data was typically in the form of a rubric from the course instructor. For this outcome, only 1 course for the Fall had multiple students enrolled, so it was used for assessment. Course: CHEM 5620 Biophysical Chemistry (rubric attached). For the spring, one course had multiple students enrolled, CHEM 5470 Medicinal Chemistry. However, due to course modifications due to moving online with the COVID-19 situation, this course was not used in assessment.

For Outcome 4, the final defense was used for assessment by asking the chair of the committee to fill out a rubric. We had no MS students complete their degree this year, so no data was collected.

For Outcome 5, we intend to develop an online ethics module. However, this work has not yet been completed and thus was not assessed.

Madrid does not have a graduate program in Chemistry.

3. Assessment Methods: Evaluation Process

What process was used to evaluate the student artifacts, and by whom? Please identify the tools(s) (e.g., a rubric) used in the process and include them in/with this report.

Outcomes were assessed by rubrics, which are attached. Data was provided without names.

Data was provided to Department's Assessment Committee.

4. Data/Results

What were the results of the assessment of the learning outcomes? Please be specific. Does achievement differ by teaching modality (e.g., online vs. face-to-face) or on-ground location (e.g., STL campus, Madrid campus, other off-campus site)?

For Outcome 2: No students completed their degree this year, so no data to analyze.

For Outcome 3: All of our MS students were rated meeting expectations on their ability to communicate scientific finding for CHEM 5620. Outcome was not assessed for CHEM 5470 due to COVID-19 related course modifications.

For Outcome 4: No students completed their degree this year, so no data to analyze.

No data collected for Outcome 5.

It should be noted that the number of MS students is usually small, which may skew the results.

5. Findings: Interpretations & Conclusions

What have you learned from these results? What does the data tell you?

Based on our analysis, our MS students are meeting expectations, although we were limited in our assessment this year. As we work to develop courses for online delivery in the fall, we recommend faculty adjust their rubrics to allow for alternative methods of communication.

6. Closing the Loop: Dissemination and Use of Current Assessment Findings

A. When and how did your program faculty share and discuss these results and findings from this cycle of assessment?

The results of the assessment will be shared with the full faculty during our annual department retreat later this summer.

B. How specifically have you decided to use findings to improve teaching and learning in your program? For example, perhaps you've initiated one or more of the following:

Changes to the Curriculum or Pedagogies	• Course content • Teaching techniques • Improvements in technology • Prerequisites	• Course sequence • New courses • Deletion of courses • Changes in frequency or scheduling of course offerings
Changes to the Assessment Plan	• Student learning outcomes • Student artifacts collected • Evaluation process	• Evaluation tools (e.g., rubrics) • Data collection methods • Frequency of data collection

Please describe the actions you are taking as a result of the findings.

None at this time.

If no changes are being made, please explain why.

Data will be shared with all of our faculty during our annual retreat, which is held after the submission of this report. Actions may be proposed at that time.

7. Closing the Loop: Review of Previous Assessment Findings and Changes

A. What is at least one change your program has implemented in recent years as a result of assessment data?

This is the first year assessing these outcomes using these metrics, so we have not implemented changes based on them at this time.

B. How has this change/have these changes been assessed?

N/A

C. What were the findings of the assessment?

N/A

D. How do you plan to (continue to) use this information moving forward?

N/A

IMPORTANT: Please submit any assessment tools and/or revised/updated assessment plans along with this report.

Rubric for Biophysical Presentations. Presentation	**Highly Proficient (6 points)**	**Proficient (4 points)**	**Minimally Proficient (2 points)**	**Not Proficient (0 points)**
a. Organization Points:	Presentation is very well organized. Thorough outline of content is presented at the beginning, adhered to through the talk, and used to summarize at the end. There is an orderly progression from the statement of the problem, through the experimental design, description of experiments, gathering and analysis of data, conclusions drawn, to final summary and ideas for future experiments.	Presentation is well organized. Outline of content is provided at outset but not adhered to or has some elements missing. Progression through content is orderly but has occasional gaps or disconnects. Summary misses one or more key points and/or ideas for future experimentation. Student doesn't trim data to fit into talk length.	Presentation is organized but very minimal outline of content is provided at outset. Progression through content has gaps and/or disconnects. Presentation of experimental results is not explicitly linked to the problem or the conclusions. Summary is minimal.	No outline is provided at outset and/or outline is not adhered to. Numerous gaps and disconnects through presentation of content. No clear connection between problem, proposed experimental route to address problem, data gathered/analyzed, and possible conclusions from data. Summary is minimal or absent.
b. Time frame Points:	Presentation makes best use of time allotted. Clear evidence that speaker has practiced beforehand. All the prepared material is covered and there is no necessity to rush through latter part of presentation.	Presentation makes good use of time allotted. Speaker appears to have practiced beforehand. Occasional need to rush or skip things, but most of the prepared material is covered.	Presentation makes fair use of time allotted. Speaker has practiced but not enough. Significant prepared material either not covered or rushed through because time is not managed well. Presenter speaks too slowly or too rapidly.	No evidence that speaker has practiced beforehand. Presentation is either rushed because time has not been managed properly or significant information is omitted and presentation is too short.
c. Delivery Points:	Student consistently speaks clearly, is loud enough to be heard throughout room, and makes good eye contact and interacts positively with audience, appearing comfortable and confident. Presentation not read or memorized from a script.	Student usually speaks clearly, is loud enough to be heard, and makes good eye contact and interacts positively with audience. Parts of presentation read or memorized from a script or student infrequently gets flustered. Student occasionally blocks audience view.	Student speaks clearly, is loud enough to be heard, and makes good eye contact with audience through at least half of the presentation. Parts of presentation are read or memorized from a script and student gets flustered on occasion. Student is immobile and/or appears uncomfortable with room or equipment.	Student does not speak clearly, is often not loud enough, or doesn't make eye contact with audience through significant parts of the presentation. Significant parts of presentation are read or memorized from a script and/or student gets flustered on several occasions.

d. Vocabulary Points:	Student always uses appropriate chemical terms correctly to describe background chemistry, laboratory equipment and experiments and data analysis.	Student usually uses appropriate chemical terms correctly to describe background chemistry, laboratory equipment and experiments and data analysis. Occasional lapses into non-chemical terminology.	Student uses appropriate chemical terms correctly to describe background chemistry, laboratory equipment and experiments and data analysis through half the presentation. Frequent lapses into non-chemical terminology.	Student rarely uses appropriate chemical terms correctly to describe background chemistry, laboratory equipment and experiments and data analysis.
e. Ability to handle questions Points:	Student responds to questions confidently and enthusiastically. Student shows ability to think through and answer unexpected questions.	Student responds to questions s/he has prepared for confidently and enthusiastically, but occasionally gets flustered by unexpected questions.	Student responds to half of the questions confidently and enthusiastically. Gets flustered often.	Student unable to handle questions without demonstrating significant disconcertion.
2. Content	**Highly Proficient (6 points)**	**Proficient (4 points)**	**Minimally Proficient (2 points)**	**Not Proficient (0 point)**
a. Context of Problem Points:	Problem is introduced with thorough and methodical explanation of how the problem fits into chemical sub-discipline and how experimental approach will address the problem.	Problem is introduced with logical explanation of how the problem fits into chemical sub-discipline and how experimental approach will address the problem. Occasional gaps or disconnects are evident.	Problem is introduced with minimal connection to chemical sub-discipline. Experimental approach is not well connected to problem.	No connection is established between problem and chemical sub-discipline. Experimental approach is either not correlated to problem or the correlation is incorrect or illogical.
b. Presentation and Evaluation of Data/Results Points:	Data/results are presented and discussed in logical manner using tables, graphs, spectra, etc. effectively. Student demonstrates a clear understanding of how data/results were obtained, what they mean and how they fit into the problem's context.	Data/results are presented and covered in logical manner using tables, graphs, spectra, etc. effectively. Student does not always show a clear understanding of how data/results were obtained, what they mean or how they fit into the problem's context.	Data/results are presented but explanations are illogical or incomplete. Use of tables, graphs, spectra, etc. not always effective or student does not always demonstrate an understanding of how data/results were obtained, what they mean and how they fit into the problem's context.	Data/results are presented with minimal or incorrect explanations. Tables, graphs, or spectra are absent or used ineffectively. Student does not demonstrate an understanding of how data/results were obtained or what they mean. No connections to problem's context.

c. Assessment against Objectives Points:	Student demonstrates a clear understanding of how experimental approach will address problem, how results will contribute to better understanding, what control/background experiments will be necessary, and how those control/background experiments will rule out certain possible conclusions/confusion. Student frames results within context of problem and other data (other students or literature)	Some gaps evident in student understanding of how experimental approach will address problem, how results will contribute to better understanding, what control/background experiments will necessary, and/or how those control/background experiments will rule out certain possible conclusions/confusion. Understanding is enhanced by questioning or explanation from faculty or other students.	Some gaps apparent in student's connection between experimental approach and problem. Explanation of control/background experiments does not fully explain their necessity or conclusions that can result from acquired data or results. Understanding only minimally enhanced by questioning or explanation from faculty or other students.	Student demonstrates only minimal understanding of how experimental approach will address problem. No or minimal discussion of control/background experiments. No connections made between experimental results and possible conclusions. No connections between student results and results of other classmates or in the literature.
d. Validity of Conclusions Points:	All conclusions follow logically and correctly from data/results presented. Student makes no irrational claims or assumptions. Student demonstrates a clear and thorough understanding of what conclusions mean and how they fit into problem's context.	Most of the conclusions follow logically and correctly from data/results presented. Student makes a few claims or assumptions that do not directly follow from data/results. Student demonstrates a surface understanding of what conclusions mean and how they fit into problem's context, but misses some deeper connections.	Many of the conclusions follow logically and correctly from data/results presented. Student occasionally makes irrational claims or assumptions. Student demonstrates a partial understanding of what conclusions mean and how they fit into problem's context.	Several of the conclusions presented are not substantiated by data/results. Student makes several irrational claims or assumptions and has no clear understand of what the data/results mean and how they fit into the problem's context.
e. Response to Questions Points:	Student always understands questions, and answers are always logical, thorough, and within the context of the chemical problem and experimental results obtained.	Student usually understands questions, and answers are usually logical, thorough, and within the context of the chemical problem and experimental results obtained.	Student does not understand all the questions, and answers reveal that student does not fully understand the chemical problem and/or what the experimental results mean.	Student is unable to answer questions or answers are illogical or incorrect.

Presenter’s Name:

Total Points: /60

Comments: