

Chemistry Department – Action Plan

January 17, 2020

The Monmouth College Chemistry Department went through a program review last spring (2019). After many meetings, a faculty retreat, and generating a written document that assessed the Chemistry/Biochemistry program, the department was reviewed by Craig Bieler, Professor of Chemistry at Albion College. This document contains excerpts from the summary of recommendations from Dr. Bieler for the department along with what the department is choosing to do to move forward productively. As you can see in the table below, our action plan consists of five items with a total projected completion date of Spring 2024 if all goes as planned.

Summary of Action Plan

*all overseen by the department chair

Action Item	Contact Person	Timeline
Scientific Writing	Audra Goach	Fall 2021
Teamwork	Audra Goach/Laura Moore	Spring 2021
Undergraduate Research	Brad Sturgeon	Spring 2022
Faculty Time	Brad Sturgeon	Fall 2022
Assessment Data Analysis	Michael Prinsell	Spring 2024

Recommendation #1 – Mission and Assessment

“...the department carefully consider writing a Mission Statement and/or Vision for the department. The Mission Statement is a formal statement of the goals and values of the department which helps to guide all decisions made by the faculty for the department’s future direction. It will allow the faculty to think forward and to help focus their decision making processes. It is apparent that the faculty have clear ideas on what the mission and goals of the department are; therefore, it is expected that formalizing and agreeing upon the Mission should be straight-forward.”

“The faculty are encouraged to continue to think about ways to measure the progress of their students with regards to the learning objectives. They have suggested embedded questions throughout a course or even throughout the curriculum as a way to do this. Another suggestion would be to look at the framework put forward by the Association of American Colleges & Universities VALUE rubrics. These rubrics work to assess broader student learning goals and the examples provided may give the faculty ideas on other ways to implement assessment to complement those already discussed”

Learning Objectives from the Chemistry Department’s Spring 2019 Self Study

“The learning objectives for our majors (Chemistry and Biochemistry), which were defined prior to 2011, are used to guide the curriculum and other activities in our department. We will discuss them in context with the information we have obtained for this report. The learning objectives are as follows:

1. Sharpen students’ quantitative skills
2. Encourage critical thinking
3. (*Biochemistry*) Demonstrate the cumulative aspect of chemistry principles and how they relate to biological systems.
(*Chemistry*) Demonstrate the cumulative aspect of chemistry principles.
4. Develop students’ analytical skills by using inquiry-based learning in class
5. Strengthen students’ scientific writing and presentation skills”

Plan

Looking at the “objectives” we defined in our self-study and reading what the reviewer wrote in his review, what we defined as objectives are actually goals and that is why our department may have been experiencing a difficult time measuring them. The department, therefore, needs to have clearer objectives if we are going to measure the learning of our students. **Overseen by Laura Moore (department chair)**, we will work to identify our learning goals and objectives to make clear which are goals and which are objectives that can be measured. The goals above will most likely remain the same with one being added specifically for undergraduate research and one for the importance of teamwork in our discipline. We will then identify measurable objectives for the three goals, scientific writing, undergraduate research, and teamwork; we hope to utilize the VALUE rubrics that the reviewer references.

Timeline

The objectives should be outlined by **Spring 2022** as we have a year or two of transition with a new faculty member in Fall 2020 and also sabbaticals for three of our current faculty over the next two academic years.

Scientific Writing: Audra Goach – Fall 2021 projected completion date

The faculty in the department would like to better prepare our students for writing scientific publications. To accomplish this, we need to outline clear objectives which was also recognized by the reviewer. The projected completion date for outlining these objectives is Fall 2021 so that a plan for accomplishing these objectives can be put in place.

Teamwork: Audra Goach/Laura Moore – Spring 2021 projected completion date

The faculty in the department have recently seen an increase in dissatisfaction among students when utilizing group work in classes and lab but we believe this is a valuable skill in our discipline. We plan to write a specific goal for this and also outline clear objectives for utilizing proper teamwork in our courses.

Undergraduate Research: Brad Sturgeon – Spring 2022 projected completion date

Undergraduate research is obviously important to our department as the reviewer noticed and commented on, and as the college as a whole knows due to our summer Doc Kieft research program and our continued undergraduate research during the semester. But we currently don't adequately assess undergraduate research. The department will outline clear objectives for our research program and have a plan for how to assess this by Spring 2022.

Recommendation #2 – More Time for Research

“As stated earlier, undergraduate research has been recognized as an important aspect of the chemistry curriculum at liberal arts colleges across the nation; therefore, the reviewer encourages the chemistry department to continue on the path that they have chosen with regards to undergraduate research. The foundation is in place to strengthen and grow this program, both from the perspective of departmental culture and the perspective of funding. It is an important aspect of student learning and both current and prospective students recognize this.”

“An important aspect of undergraduate research is not only presentation of results at national meetings, but also publishing those results in peer-reviewed journals. The faculty have indicated that this has not been a priority because of time constraints. The reviewer noted that several faculty are due, or past due,

for sabbatical leaves. Sabbaticals are the perfect time to spend focused on preparing papers for journal submission and the faculty are encouraged to take advantage of this benefit.”

“...minimize these time commitments. The reviewer notes that the chemistry faculty spend a great deal of time in service to the college. They serve on (multiple) major committees on campus, multiple faculty search committees, and many ad hoc committees. The fear is that since the chemistry faculty are so engaged and committed to the college they are automatically asked to be on a committee or to provide a service to the college because people know they will say ‘yes’. Both the faculty and the administration should be careful not to exploit the faculty’s time. Also, the reviewer noticed that the college does not give release time for department Chairs to perform all of the necessary administrative duties nor does there seem to be a way for faculty to receive compensation for teaching overload sections of classes. Both of these concerns should be addressed by the administration. Finally, the faculty are encouraged to think carefully about all of their time commitments and decide which are the most important – both personally and professionally. This is where a departmental mission statement plays a key role. What activities will help move the department forward? What activities are required for the college or department? Be mindful of the time that is spent on activities which may not have a direct impact on your teaching or research. Decide if all of the current activities that you are involved in are appropriate or important enough to continue to pursue. Choose the most appropriate ones and follow them to completion and beyond. These are all difficult choices and decisions for us to make, especially since the Monmouth chemistry faculty have so many excellent ideas, but periodically a self-evaluation is necessary and appropriate.”

Plan

The department will be more aware of where their faculty members are spending their time and make sure that all faculty members are given the opportunity to excel in teaching, service, and scholarship.

History

On pages 10-12 in the Chemistry Department’s Self-Study, we articulate all the initiatives in which our department members participate. We do a lot of service and also teach some of the largest majors on campus. We need to make sure that each member has the allotted time to do scholarship as well as take their sabbatical. In the past, we have agreed that some of us spend more time on teaching than service and research while others spend more time on research than teaching and service. We have communicated well over the years in this regard and will continue to do so.

Timeline

Sabbaticals: Laura Moore – Spring 2023 projected completion date

Fall 2020 – Audra Goach

Spring 2021 – Laura Moore

Fall 2021 or Spring 2022 – Brad Sturgeon

Fall 2022 or Spring 2023 – Michael Prinsell (if awarded Tenure)

Managing our Time as a Department: Brad Sturgeon – Fall 2022 projected completion date

In Fall 2020, the department will gain an additional faculty member. After a year of incorporating this member into our department, it would seem productive for us to reevaluate where all our best efforts should be focused. Brad, in the past, has been great at communicating with us about

our weighted time efforts. I think it would be a good idea if we all came together to discuss this again.

Recommendation #3 – Support Personnel

“For example, faculty members have stated that the already collected assessment data provided through ACS exams is available but there has not been time to compile that data meaningfully in order to be able to use it effectively. Support for activities such as this, among other items mentioned by the department faculty members, can help the faculty be more efficient and effective in completing the college’s mission.”

Plan

The department would like for the administration to think about hiring an institutional researcher that can directly help with assessment. This will be especially important for us with the addition of the new majors, the new BS in Chemistry and Biochemistry, as well as Neuroscience and Engineering.

Timeline

Assessment Data Analysis: Michael Prinsell – Spring 2024 projected completion date

The earliest that assessment data could be properly analyzed would be at least 4 years after starting the new programs. This, of course, depends on the college’s ability to hire an institutional researcher.