Chemistry Program Review 2023-24

Closing MOU **Date: June 26, 2024**

Overview

Degree/Certificate Programs Reviewed: B.S. in Chemistry
B.S. in Chem./B.S. in Ed. NevadaTeach Secondary Education and Chemistry
M.S. Chemistry
Ph.D. Chemistry
Ph.D. Chemical Physics

Department Chair & Dean: Dr. Sean Casey Department Chair & Dr. Louisa Hope-Weeks Dean

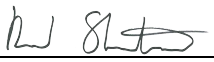
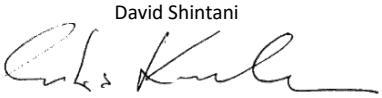
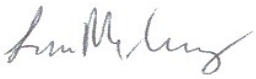
External Reviewers & Affiliation: Dr. Amanda Morris, Chair, Dept. of Chemistry, Virginia Tech
Dr. Jared Shaw, Professor II, Dept. of Chemistry, University of California, Davis
Dr. Angela Wilson, Associate Dean, Dept. of Chemistry, Michigan State University

Date of External Visit: April 29 -30

Review Process Summary

The Chemistry program was scheduled for regular program review as mandated by the Board of Regents and University policy. A self-study document for the department and its programs was developed by the department faculty and completed in the Fall of 2023 for Chemistry programs. These respective reports were provided to the reviewers before they conducted a visit on April 29-30, 2024. The external reviewers reviewed the program and met with relevant faculty, staff, students and administrators to determine the department's accomplishments, examine strengths and weaknesses, and identify opportunities as it plans for the future. A final report was issued by the review team shortly after the review visit. In accordance with institution practice, responses to the review were solicited from the department and the dean. A final meeting took place on August 21, 2024. This document represents the final MOU of recommendations and findings from the review.

Signatures

Executive Vice President & Provost:	 Jeffrey S. Thompson	Date:	10/16/2024
Vice Provost, Undergraduate Education:	 David Shintani	Date:	10/16/24
Vice Provost, Graduate Education & Dean, Graduate School	 Markus Kemmelmeier	Date:	10/16/2024
Dean, College of Science:	 Louisa Hope-Weeks	Date:	10/16/24
Chair, Chemistry Department		Date:	09/30/2024

Major Findings and Conclusions

Chemistry is the central science, and its principles operate in all aspects of our daily lives. Understanding chemistry is fundamental in understanding the world around us, everything from energy to biology, medicine to materials, and more. The Chemistry department offers an exceptional foundational undergraduate program as well as three graduate degrees, including one interdisciplinary Ph.D. in Chemical Physics. Research is conducted in state-of-the-art facilities at the University as well as through scientific collaborations at research centers across the country.

The reviewers called out many positive attributes and findings regarding the Chemistry department. Assistant professors feel supported and teaching faculty seem to be thriving. Students, graduate and undergraduate both feel positive, upbeat and happy about the program and their experience in the program. The shared instrument staff support person (Stephen Spain) is excellently maintaining a broad diversity of shared instruments, including helping with instrument repairs. Faculty feel supported at the college level for pre-award activities, including grant submission. Pre-tenured fac-

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The areas that the reviewers thought should be addressed are as follows:

- Restore machine shop, electronics shop and office support staff to decrease/remove undue administrative burden of research-active faculty.
- Devise sustainable technical support plan for research and teaching instrumentation and services.
- Make strategic hires to help priority areas. In particular, Inorganic and Analytical chemistry
- Increase graduate program recruiting through department seminars. The department should fund travel for faculty to visit schools (specifically PUIs) to cultivate enthusiasm for the UNR Department of Chemistry. At the same time, the department should host one or two faculty per year from PUIs in the region where they hope to recruit.
- Better coordinate the transition for students with advising as they change from college advisor to faculty advisors
- Review curriculum and include using resources such as the American Chemical Society.

Next Steps for this Program/Department (topics will vary)

- Work with Provost/Dean's offices to ensure vacant faculty and administrative positions are filled. Many of these positions could potentially be college-level or university-level hires.
- Expansion/replacement of chemistry department faculty requires some further investment in facilities as noted in the report. Outside of the newly renovated first floor, the chemistry building has infrastructure issues, as noted in the report. Our most recent two hires required an investment of about $50k in "minor" remodeling/renovation of existing laboratories. And these were into labs that were deemed to be in "pretty good shape". Our next hire will likely be into space in less "good shape", and remodel/renovation costs of $75-100k are likely to be encountered.
- Keep updating equipment through awards, and other means.
- Work with Advising to help streamline the transition students experience from their college advisors to faculty advisors.
- Currently reviewing graduate and undergraduate curriculum and in addition increasing efforts in assessment and tracking student outcomes.
- Increasing recruitment efforts with seminars and marketing and consider applying for an NSF-REU program.

Vital Statistics on NSHE Reports

Number of students with declared major in the program area:

2023-2024	B.S. in Chemistry	120
	B.S. in Chem./B.S. in Ed. NevadaTeach Dual Degree	2
	M.S. Chemistry	12
	Ph.D. Chemistry	59
	Ph.D. Chemical Physics	15

Number of graduates from the program for the following years:

2021-2022	B.S. Chemistry	16
	B.S. in Chem./B.S. in Ed. NevadaTeach Dual Degree	2
	M.S. Chemistry	4
	Ph.D. Chemistry	10
	Ph.D. Chemical Physics	3
2022-2023	B.S. Chemistry	27
	B.S. in Chem./B.S. in Ed. NevadaTeach Dual Degree	1
	M.S. Chemistry	1
	Ph.D. Chemistry	8
	Ph.D. Chemical Physics	0
2023-2024	B.S. in Chemistry	31
	B.S. in Chem./B.S. in Ed. NevadaTeach Dual Degree	0
	M.S. Chemistry	3
	Ph.D. Chemistry	8
	Ph.D. Chemical Physics	0

Program-level graduation rate using first-time, full-time, degree-seeking cohort at 150 percent completion time:

2021-2022	B.S. Chemistry	71% n = 38
	M.S. Chemistry	67% n = 3
	Ph.D. Chemistry	53% n =15
2022-2023	B.S. Chemistry	56% n = 39
	M.S. Chemistry	0% n = 2
	Ph.D. Chemistry	63% n = 19
2023-2024	B.S. Chemistry	73% n = 55
	M.S. in Chemistry	67% n = 3
	Ph.D. in Chemistry	78% n = 9

Headcount of students enrolled in any departmental course related to the program (duplicated):

2023-2024	B.S. Chemistry (100 – 400 level)	3490
	M.S. Chemistry (600 level)	60
	Ph.D. Chemistry (700 level)	186