

ASSESSMENT REPORT 2022-2023

Chemistry Graduate

(Instructional Degree Program)

M.S.

(Degree Level)

Program Mission:

The goal of the chemistry Master of Science degree program is to adequately prepare the graduate students to enter the work force at the level of a M.S. graduate. It is also designed to prepare students for the rigors of a more advanced Ph.D. program of study.

Student Learning Outcome 1:

NMHU Master of Science Chemistry graduates should be familiar with chemical literature and comfortable in presenting and researching relevant chemistry topics.

NMHU Traits Specifically Linked to Student Learning Outcome 1

- Mastery of Content Knowledge and Skills
- Effective Communication Skills

First Means of Assessment for Outcome 1:

Chemistry 6910, a required colloquium course, is designed to evaluate the students' abilities to produce papers and oral presentations based on chemical literature chosen in consultation with their research adviser. This outcome is considered met if the student earns a B or better in CHEM 6910. The program goal will be considered met if the percentage of students meeting this criteria is greater than 90%.

Summary of Data:

Number of Students Meeting Criterion:	5	Number of Students Not Meeting Criterion:	0
Total Number of Students Assessed:	5	Percent of Students Meeting Criterion:	100%

Second Means of Assessment for Outcome 1:

Chemistry Research Seminar 5550, a required course in the MS degree, involves a literature presentation as well as description of experimental/computational projects designed to assess student's ability to carry out literature research and presentation of relevant background information in an area outside of their research project. This outcome is considered met if the student receives a grade of 75% or higher on this assignment. The program goal will be considered met if the percentage of students meeting this criteria is greater than 90%.

Summary of Data:

Number of Students Meeting Criterion:	13	Number of Students Not Meeting Criterion:	0
Total Number of Students Assessed:	13	Percent of Students Meeting Criterion:	100%

Interpretation of Results for Outcome 1:

All students met the Outcome 1 criteria.

Student Learning Outcome 2:

NMHU Master of Science Chemistry graduates should be able to analyze and solve a chemical problem and communicate appropriate solutions to the problem that utilize appropriate chemistry-related instrumentation.

NMHU Traits Specifically Linked to Student Learning Outcome 2

- Mastery of Content Knowledge and Skills
- Effective Communication Skills
- Effective Use of Technology

First Means of Assessment for Outcome 2:

Chemical Thermodynamics 6710, a required course in the MS program, is a textbook and research-based course that includes students presentations of results published in the scientific literature or students' research results that were obtained in the labs. It includes knowledge of instrumentation and experimental problem solving. This outcome is considered met if the student earns a B or higher in CHEM 6710. The program goal will be considered met if the percentage of students meeting this criteria is greater than 90%.

Summary of Data

Number of Students Meeting Criterion:	4	Number of Students Not Meeting Criterion:	0
Total Number of Students Assessed:	4	Percent of Students Meeting Criterion:	100%

Interpretation of Results for Outcome 2:

Students show proficiency in this area. This demonstrates the ability of our students to analyze and perform literature and experimental data efficiently.

Student Learning Outcome 3:

NMHU Master of Science Chemistry graduates should have the opportunity and the ability to present their research outside of the department to the broader scientific community.

NMHU Traits Specifically Linked to Student Learning Outcome 3

- Mastery of Content Knowledge and Skills
- Effective Communication Skills
- Critical and Reflective Thinking Skills

First Means of Assessment for Outcome 3:

This outcome is considered met if the students present their thesis research at venues outside of the chemistry department seminar. Examples of such venues include professional meetings, poster symposia, or invited seminars at other institutions, and the NMHU Research Day. The program goal will be considered met if the percentage of students meeting this criterion is greater than 75%.

Summary of Data

Number of Students Meeting Criterion:	6	Number of Students Not Meeting Criterion:	1
Total Number of Students Assessed:	7	Percent of Students Meeting Criterion:	86%

Interpretation of Results for Outcome 3:

The percentage is above threshold. Of the seven students assessed, only one student did not present his research. This outcome assessment period was still affected by COVID 19 where meetings were restricted to virtual conferences. We are committed to making our students aware of opportunities and encouraging them to take advantage of chances to get their research heard by a broader audience. We encourage them to participate actively in virtual conferences as well as regular in-person conferences.