Mayville State University

CHEM 470L
Integrated Lab

Fall 2025
1 Credit Hour

Course and Instructor Information

Instructor Name: Bob Miess

Contact Information: CB 108C

Office: CB 108C

Email: robert.miess@mayvillestate.edu

Work phone: 34885 (campus) 701-788-4885 (off campus)

Hours of Availability:

Monday, Wednesday and Friday: 2:00 – 3:00

Wednesday: 1:00 – 2:00

Also available for meetings on other days and times by appointment.

Office Hours Meeting Link: Include Zoom or Teams link here if you offer virtual office hours.

Instructional Mode: On-campus face-to-face

Course Dates: August 25 – December 19. 2025

Time Zone: All times indicated throughout this syllabus reflect Central Time (CT).

Zoom Link: https://mayvillestate.zoom.us/j/81027040945

Course Materials and Technologies

Required

MSU Technology Requirements
No addition materials are required.

Recommended

You may want to use Interlibrary Loan (ILL) or resources available in our library to develop your personal project. If you use ILL make sure to leave enough time to receive it as it can take several days for somethings to arrive.

Use of Artificial Intelligence in this Course

Do Your Own Work; Cite Gen AI Properly
Colorado State University
All work submitted in this course must be your own. Contributions from anyone or anything else- including AI sources, must be properly quoted and cited every time they are used. Failure to do so constitutes an academic integrity violation, and I will follow the institution's policy to the letter in those instances.

Mayville State University

Course Description

Students will complete at least two major projects through the semester. The first project will be an example lab experience synthesizing content knowledge and laboratory skills from multiple areas of chemistry. The final project(s) will be student developed project(s) that must include knowledge and skills from a minimum of two areas of chemistry (inorganic, organic, analytical, physical, or biochemistry). The student is responsible for developing the final project and performing the necessary experiments.

Pre-requisite:
Admission to major and senior standing.

Course Objectives

The purpose of this course is to prepare students for further chemistry experiences (graduate school, professional school, teaching, etc.) where abilities to think critically and creatively as well as apply and integrate the major theories of chemistry are important aspects to success.

Course Objectives:
The objectives for the course include (as aligned to Composite Science Education Program Approval Standards through North Dakota's Education Standards and Practices Board):

1.) Create opportunities to think holistically about chemistry to emphasize, integrate, and apply content knowledge
2.) Develop and work through an experimental scheme

Standards Alignment (Composite Science Education Program Approval Standards-ND ESPB):

- 13047.1 Composite Science Major/General Science The composite/general science program requires that environmental science be incorporated within other courses or as a separate course. The composite/general science program requires:1. Coursework in biology, chemistry, physics, and earth science, including: a. Minimum of twenty four semester hours in one area, b. Minimum of twelve semester hours in two other areas, c. Minimum of four semester hours in the fourth area, d. Courses must be from those that the institution allows toward graduation in the science major. 2. Study of mathematics through the pre-calculus level (college algebra and above) and statistics
- 13047.4 Context of Science The program requires the study of the effect of social and technological context on the study of science and on the application and valuing of scientific knowledge. The program prepares candidates to relate science to the daily lives and interests of students and to a larger framework of human endeavor and understanding. The program provides the candidate with an understanding of the relationship of science to industry, business, government, and multicultural aspects of a variety of communities.

Course Expectations

[Delete] Instructions: As you compose the information for each of the areas in this section, include any expectations you have of your students and what your students can expect of you. This section must contain the information in the subheadings below as well as any customized information needed for this course. See the **Course Expectations** section of the Appendix for detailed examples.

Instructor/Student Communication

I will respond to all email messages within 24 hourse during the week. If the email is sent over the weekend, I will respond by noon of the following workday.

Students are accountable for all academic communications sent to their Mayville State University email address.

Assignments and Assessments

At least two formal lab reports will be generated; one from the example experience and another for each student directed experience. Each lab report should have an introduction/abstract section, a materials section, an experimental/procedural section, a results/findings section, and a concluding section in which evidence of integration of content knowledge and relevant theory application is presented.

Regular lab activity throughout the semester is expected. Do not wait until the last week to start your work. You are expected to arrange an initial meeting with the instructor during the first week of classes. This initial meeting will involve discussing the expectations and answering questions you might have.

You are expected to follow the basic lab safety protocols presented in other chemistry courses during your times in the lab.

You are expected to complete at least two projects over the course of the semester. The first project is designed to demonstrate how a typical student-directed project should involve multiple areas of chemistry. This sample project involves inorganic synthesis of stereoisomers which will then be analyzed for optical activity. This project and paper should be completed by mid-term at the latest.

The second project is something you will design and carry out. It should address a question and involve at least two areas of chemistry. You should have a draft of the experimental procedures which identifies the areas of chemistry you are incorporating in your project to me by midterm. This allows time for feedback regarding your project and you time to complete the lab project by the end of the semester. The final paper needs to be submitted by the end of Final Exam Week, Friday, May 10.

You are expected to submit written summaries of the projects upon successful completion of lab activities. These summaries should follow a basic professional journal format with an abstract, introduction, procedure section, and a results and discussion section.

Evaluation and Grading

Grading Policies

Grades of late work will receive a lowered grade.

Attendance/Participation Policies

As this an independent course, you are expected to plan a minimum of 5 hours of class relevant activities per week which includes researching your topics, planning your activity, and completing the activity.

Grading Scale

A > 90%, B > 80%, C > 70%

Breakdown of Grades

The final grade is weighted between the two reports. Sample experience/report = 30 % and the student directed experience(s)/report(s) = 70 %.

Enrollment Verification

The U.S. Department of Education requires instructors to conduct an activity which will validate student enrollment in this course. Class attendance will be used to verify enrollment in on-campus courses. If you do not attend, your enrollment in this course will be at risk.

Proctor Notification

No proctors are required for this course.

Important Student Information

In the Announcements section of the Blackboard Institution Page, you can view and download the Important Student Information document for the current academic year. It includes information about:

- ✓ Land Acknowledgement Statement
- ✓ Academic Grievance Concerns and Instructor English Proficiency
- ✓ NetTutor - Online Tutoring Program
- ✓ Starfish - Student Success System
- ✓ Students with Documented Disabilities
- ✓ Student Learning Outcomes / Essential Learning Outcomes
- ✓ Academic Honesty
- ✓ Emergency Notification
- ✓ Continuity of Academic Instruction for a Pandemic or Emergency
- ✓ Family Educational Rights and Privacy Act of 1974 (FERPA)
- ✓ Diversity Statement (Title IX)

Course Timeline/Schedule

A detailed listing of deadlines in provided in the Bb shell. Course Timeline and Schedule are subject to change as deemed necessary by the instructor.