



Course Syllabus: **Organic Chemistry Lab**
McCoy College of Science, Engineering, and Mathematics
CHEM 2001
Fall 2020

Contact Information

Instructor: Dr. Christopher A. Hansen
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Course Description

This class provides laboratory experiments to accompany CHEM 2003. You will learn separation and purification techniques and quantitative methods in organic chemistry. You will also be introduced to organic synthesis. Students in this course must demonstrate their competency in written communication, some fundamental math skills, and basic use of computers through exams and written reports

Textbook & Instructional Materials

CATALYST- Organic Chemistry I and II.
Organic Chemistry Laboratory Notebook, Morton Publishing, ISBN 978-1-61731-972-3.
Approved Safety Goggles for wearing in lab.
Laboratory Marker (Sharpie).

Student Handbook

Refer to: [Student Handbook 2019-20](#)

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

[Student Handbook 2019-20](#)

Grading

Course Grade – Below is a breakdown of point distribution

Assignments	Percentages
Lab Reports	55%
Lab Quizzes	15%
Final Exam	30%

Quizzes

Quizzes will be given at the end of the prelab lecture covering the most recent lab completed.

Lab Reports

Lab reports need to be stapled before coming to class. Please do not ask the chemistry office for a stapler. Prelab and postlabs are due before prelab lecture starts. Organization of the lab reports will be discussed in the format section of this syllabus. Laboratory notebooks contain a top original copy which you will retain and a bottom carbon copy which is turned in for grading. All entries in your notebook should be in ink and legible. Your notebook should be detailed enough for another person to follow. Always include name, date, lab number, etc. on the top of every page. Each new experiment should begin with a new page. In the lab notebook you should record actual measurements. Include calculations, yields, and physical observations for your end products.

Exams

The final exam will be given during your designated lab time. It will be comprehensive covering all the experiments performed during the semester. The exam will be mostly short answer and fill in the blanks with a small number of multiple choice. No scantrons will be needed.

Late Work

Prelabs and postlabs will be due on the desk prior to starting the prelab lecture. Anything turned in after I start the lecture will be considered late and points will be deducted.

Make Up Work

You will not be able to switch lab sections to do a lab. Contact me for individual issues.

Important Dates

Fall Semester 2019

Classes begin - August 24

Change of Schedule or Late Registration - August 26-28

Labor Day - No classes - September 2

Deadline for December graduates to file for graduation – September 30

Deadline for May graduates to file for graduation - October 7
Spring 2019 Schedule of Classes available online - mid-October
Last Day for "W", 4:00 p.m. – Drops after this date will receive grades of "F." -
October 28
Thanksgiving Holidays begin 10:00 p.m. - November 26
Classes resume – December 2
Last day of classes - December 6
Final examinations begin - December 7
Commencement - December 14
Refer to: [Drops, Withdrawals & Void](#)

Desire-to-Learn (D2L)

Use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a source of communication regarding assignments, examination materials, and general course information. You can log into [D2L](#) through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Attendance

Attendance is expected as stated in the Student Handbook.

Instructor Class Policies

Safety will be discussed in class. However, to reinforce safety goggles, closed toe shoes and reasonable covering of skin by clothing is required.

Services for Students With Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

College Policies

Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

Smoking/Tobacco Policy

College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Notice

Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.

Course Schedule:

Week of	Exp	Topic	Catalyst	Quiz
August 26	Check-in	Safety	NA	No
September 3	1	Equipment and Techniques	OP 1,4,5,18	Yes
September 9	2	Crystallization	OP 7,8,10,28,33	Yes
September 16	3	Extraction	OP 18, appendix	Yes
September 23	4	Thin Layer Chromatography	OP 22	Yes
September 30	5	Alkyl Halides from Alcohols	Wade 6, OP 34,39,appendix	Yes
October 7	6	Nucleophilic Substitutions	Wade 6	Yes
October 14	7	Methylcyclohexene	Wade 7 OP 30,39	Yes
October 21	8	Preparation of Adipic Acid	Wade 8 OP 15, 16	Yes
October 28	9	Preparation of 9-Fluorenl	Wade 10	Yes
November 4	10	Grignard Rxn	Wade 10	Yes
November 11	10	Grignard Continued	NA	No
November 18	Final Exam	Comprehensive Written Exam and check-out	NA	No

Format for reports

Pre-Lab consists of sections 1-4.

Post Lab consists of sections 5-8.

For the Pre Lab write-up (Always include name, date, lab number, etc. on the top of every page):

1. **Grade sheet with Prelab questions: needs to be stapled to the front**
2. **Main Idea.** Write a brief sentence or two describing what you expected to learn or to accomplish along with a reaction (If applicable).
3. **Table of physical constants.** Include a Table of Physicals Constants which should include name of chemicals used or synthesized, **MW, mp/bp, density, structure**, and any special **hazard/cautionary** notes.
4. **Reaction(s).** Include **all** possible reactions that might occur in the lab for that week. If there is no reaction then write there are no reactions for this lab.

Two web sites that will assist in chemical property data collection are listed below.

[Chemexper](#)

[Chemfinder](#)

Below is a web site for structures which can be used to obtain spectroscopic data

[AIST](#)

For the Post lab write-up (Always include name, date, lab number, etc. on the top of every page):

5. **Grade sheet with Prelab questions: needs to be stapled to the front**
6. **Data and observations.** This is the procedure section. As you perform your lab write down in your lab book the methods you are doing and data you are obtaining. For any melting or boiling point that you measure, the literature value should also be reported. The spectra obtained should be labeled (indicate the structural features responsible for the peaks indicated) and stapled (IR, NMR, UV) to the back of your report.
7. **Calculations.** This section must include all calculations. Be sure to label all calculations clearly.
8. **Conclusions.** This is especially important for investigative type experiments. Discuss results obtained with respect to anticipated findings, any errors that may have caused your results to deviate from what was expected, and any side reactions that may have decreased yields. **Summarize what you learned. Discuss your data!!!!!!!**

Laboratory Safety

1. Wear approved eye protection in the laboratory continuously. This means eye covering which will protect both against impact and splashes. (If you should get a chemical in your eye, wash with flowing water from a sink or fountain for 15-30 min.)
2. Perform no unauthorized experiments.
3. In case of fire or accident, call instructor at once. (Note location of fire extinguisher and safety shower now so that you can use them if needed. Wet towels are very efficient for smothering fires.)
4. You must go to the infirmary for treatment of cuts, burns, or inhalation of fumes. (Your instructor will arrange for transportation if needed.)
5. Do not taste anything in the laboratory. (This applies to food as well as chemicals. Do not use the laboratory as an eating place and do not eat or drink from laboratory glassware.)
6. Exercise great care in noting the odor of fumes and avoid breathing fumes of any kind.
7. Do not use mouth suction in filling pipettes with chemical reagents. (Use a suction bulb)
8. Do not force glass tubing into rubber stoppers. (Protect your hands with a towel when inserting tubing into stoppers.)
9. Confine long hair when in the laboratory. (Also, a laboratory apron is essential when you are wearing easily combustible clothing. Such an apron affords desirable protection on all occasions.)
10. No open-toed shoes will be allowed in the laboratory.
11. Never work in the laboratory alone.
12. No smoking or other use of tobacco products in the laboratory.
13. Failure to adhere to rules will result in immediate dismissal from laboratory. I have read the above rules. I have participated in a safety orientation, and I will observe all of the safety rules of my chemistry course.