Course Syllabus: **Organic Chemistry Lab**
McCoy College of Science, Engineering, and Mathematics
CHEM 2001
Spring 2026

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

Online organic lab manual (Free), LibreText, Lisa Nichols, Loaded on D2L
Lad, Organic notebook (bookstore).
2011 Lab Manual with experiments (bookstore).
Lab coats required (See Rae Keesling, BO 316).
Approved Safety Goggles for wearing in lab (See Rae Keesling, BO 316).
Laboratory Marker (Sharpie).

Student Handbook

Refer to: Student Handbook

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Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Violations of the academic policy will result in the assignment getting a zero (which cannot be retaken or substituted with a different grade). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.
Student Handbook

Grading

Course Grade – Below is a breakdown of point distribution (no rounding up)
Grade %: A=100-89; B=88.99-78; C=77.99-67; D=67.99-56; F=<55.99

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 resent lab completed.

Lab Reports

All lab write-ups and work is to be done on required notebooks and worksheets. Prelabs and postlabs will be turned in online into a dropbox on D2L as a scanned file (**PDF preferred, no HEIF or HEVC files**). Lab reports need to be scanned and uploaded properly for credit. Reports that are scanned sideways or upside down will not be graded. Prelabs are due before prelab lecture starts for the lab that week. Postlabs are due the week after the lab is finished before prelab lecture starts. Make sure you pay attention to the due dates and times. You can turn them in up to two weeks late but will be subject to a penalty (On time: zero points lost 0-7 days late = -2; 8-14 days late = -8.5 (-10.5); >14 days late = zero for the lab). Organization of the lab reports will be discussed in the format section of this syllabus. 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 along with the procedure. Also, Include calculations, yields, and physical observations for your end products.

Exams

The final exam will be given during your designated lab time during the week indicated. 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 as noted above. Late reports will be accepted but with deductions. You must be present in lab to turn in a post lab. If you submit a post lab for a lab you did not attend you will be given an F and subject to disciplinary action.

Make Up Work and Missed labs

You will be able to miss one lab and turn in a post lab report for half credit. Post lab grades for all other missed labs will be zero. Consult with instructor to see if

another lab period has space. It is very unlikely you will be able to switch lab sections to do a lab. Contact me for individual issues.

Important Dates

Consult the academic calendar
For drops or withdraws follow the link below.
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 certain rules remember safety googles, 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/Active Shooter
Refer to: Campus Carry Rules and Policies
Campus Carry-Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on

public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit Campus Carry.

Active Shooter-The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit Safety / Emergency Procedures. Students are encouraged to watch the video entitled "*Run. Hide. Fight.*" which may be electronically accessed via the University police department's webpage: *"Run. Hide. Fight."*

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		Quiz
January 19		No lab		
January 26	Check-in	Safety	NA	No
February 2	1	Equipment and Techniques	Nichols	Yes
February 9	2	Crystallization	Nichols	Yes
February 16	3	Extraction	Nichols	Yes
February 23	4	Thin Layer Chromatography	Nichols	Yes
March 2	5	Alkyl Halides from Alcohols	Wade 6, Nichols	Yes
March 9	**Break**	**Spring Break**		
March 16	6	Nucleophilic Substitutions	Wade 6	Yes
March 23	7	Methylcyclohexene	Wade 7, Nichols	Yes
March 30	8	Preparation of Adipic Acid Online lab	Wade 8, Nichols	Yes
April 6	9	Preparation of 9-Fluorenol	Wade 10	Yes
April 13	10	Grignard Rxn	Wade 10	Yes
April 20	10	Grignard Continued	NA	No
April 27	Final Exam	Comprehensive Written Exam and lab check-out		

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. Do not use R groups (generic structures), you must use actual structures. 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 the first page of the PDF. You will find these at the beginning and end of each experiment.

6. **Procedure:** This is the procedure section. This is done you your chemistry notebook. **This will be done before the lab in the notebook and graded before lab starts (0 points for this section if you are more than 5 mins late to class).**

7. **Data and observations.** As you perform your lab write down in your lab book (not on a sheet of paper) the data/observations you are obtaining. Volume, mass, MP/BP (look up literature values for comparison). The spectra obtained should be labeled (indicate the structural features responsible for the peaks indicated) and attach them (IR, NMR, UV) to the end of your report.

8. **Calculations.** This section must include all calculations. Be sure to label all calculations clearly.

9. **Conclusions.** This is especially important for investigative type experiments. Discuss results (data) 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 (goggles) that will protect against both impact and splashes; goggles must be worn over prescription glasses. If you wear contacts, it is safer to wear prescription glasses to lab instead as contacts can trap chemicals against the eye. If you get chemicals in your eye, wash with flowing water from a sink or the eye wash fountain for 15-30 minutes. Inform the instructor.
2. Come to class prepared. This means you must have read the entire lab through at least once before coming to lab and have made notes on it. Unprepared students are more likely to injure themselves or others because they do not know what they are doing.
3. Perform no unauthorized experiments. This means do not play with chemicals, chemical waste, or lab equipment.
4. In case of fire or accident, call the instructor at once. Make sure you learn the location of the fire extinguisher and safety shower on the first day of lab so that you can use them if needed. Wet towels are very efficient for smothering fires.
5. In case of chemical spills, call the instructor at once. Tell the instructor exactly what was spilled. Chemical spill kits are in every lab; make sure you know where these kits are kept on the first day of lab so that you can use them if needed.
6. You must go to the infirmary for the treatment of cuts, burns, or inhalation of fumes. Your instructor will arrange for transportation if needed. Serious injury will require a trip to the emergency room.
7. Do not taste anything in the laboratory, ever. 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. ALL food and drink (including water bottles) must remain OUTSIDE of the lab in the hall or must be completely zipped up inside of your bag or backpack (bottles and food containers cannot be set in the lab cubbies or reside in outside pouches or pockets on bags or backpacks). If you need a snack or drink during lab, wash your hands before going out into the hall.

8. Exercise great care in noting the odor of fumes and avoid breathing fumes of any kind. Waft odors toward you but do not inhale directly from tubes, beakers, etc.
9. Never use mouth suction in filling pipettes with chemical reagents; use a suction bulb.
10. Do not force glass tubing into rubber stoppers. Protect your hands with a towel when inserting tubing into stoppers. If you do injure yourself, tell the instructor.
11. Confine long hair when in the laboratory. This means that long hair must be bound in such a way that it does not come forward over the shoulders. Hair that swings forward while you are working can easily catch fire. Dangling jewelry should also not be worn for the same reason.
12. Wear lab-appropriate clothing. A laboratory apron or lab coat is essential when you are wearing easily combustible clothing. Such an apron/coat affords desirable protection on all occasions. You are required to wear long pants (denim is best) and a shirt that covers your torso (no low cut tops or crop tops) to lab. You may **NOT** wear shorts, skimpy clothing, long flowing garments, or sloppy clothing to lab. **Do not wear yoga pants or other tight synthetic clothing that will melt to your skin**.
13. **NO** open-toed shoes are allowed in the laboratory. Closed shoes that cover the **top of the foot entirely** and which do not flop in the back are REQUIRED. Crocs and other slip-ons are NOT shoes. Do NOT wear heals, shoes, or boots with slick bottoms.
14. Gloves must be worn at all times in lab. To be worn properly, gloves must fit your actual **hand size**—they should NOT be loose. This means that fingernails must be short and blunt enough to fit the glove that fits your hand. Similarly, large, bulky, or sharp rings/jewelry must also be removed to prevent tearing of the gloves or proper fit of the gloves to the size of your hand. Appropriately sized gloves are essential to ensuring you can handle chemicals and equipment safely. Be aware that most nail polishes are either flammable or will melt upon exposure to certain chemicals.
15. Never work in the laboratory alone. Do not enter the lab if the assistant or instructor is not present.
16. No smoking or other use of tobacco products is allowed in the laboratory. You may not vape in the labs and vaping equipment should be left elsewhere.
17. No guns are allowed in the laboratory.

18. Cell phones should be turned off and zipped up in your bags or backpacks. Use of phones at lab benches is a distraction, causing unsafe lab conditions for you and for other students. Use of phones at lab benches also increase chances that you will spill chemicals on the phones, which may cause loss of the phone. You may NOT listen to music while in lab, so ALL ear buds must be removed from your ears (both of them) and stowed in your backpack. You must be able to hear what is happening around you and any instructions, including emergency instructions, when given.
19. Pay attention to all waste-disposal instructions. Certain chemicals must be disposed of in very specific ways. Do not throw chemicals into trash cans or put them down the sink unless you are specifically told to do so by the instructor.
20. **Failure to adhere to these rules will result in immediate dismissal from the laboratory.**