

## Organic Chemistry Lab II (Chemistry 322L, 1 credit) Syllabus (updated 03/19/2020)

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 Office Hours by appointment through UMKC Connect in Canvas and then through ZOOM only.  
 TA office hours held at times shown on course website over ZOOM.  
 Course Format: Laboratory  
 Course Instructional Mode: *P (classroom (lab) based)*

**Course Website:** <http://d.web.umkc.edu/drewa/Chem322L/index322L.html>

Meets	Day	Time	Teaching Assistants (Office Hours on Canvas)	Instructors in charge
SCB 385	M	2:00 - 4:50 PM (V01 11603)	Reid Brenner ( <a href="mailto:brennerre@umkc.edu">brennerre@umkc.edu</a> ) Nash Harvey ( <a href="mailto:nth698@mail.umkc.edu">nth698@mail.umkc.edu</a> )	Dr. Drew Gounev
SCB 385	T	8:00 - 10:50 AM (V02 11604)	Reid Brenner ( <a href="mailto:brennerre@umkc.edu">brennerre@umkc.edu</a> ) D. Emma Helm ( <a href="mailto:dehkf4@mail.umkc.edu">dehkf4@mail.umkc.edu</a> )	Dr. Drew Gounev
SCB 385	T	2:00 - 4:50 PM (V03 11605)	John Zhou ( <a href="mailto:jzqb9@mail.umkc.edu">jzqb9@mail.umkc.edu</a> ) Mark Abnos ( <a href="mailto:mman8c@mail.umkc.edu">mman8c@mail.umkc.edu</a> )	Dr. Drew Gounev
SCB 385	W	2:00 - 4:50 PM (V04 11606)	John Zhou ( <a href="mailto:jzqb9@mail.umkc.edu">jzqb9@mail.umkc.edu</a> ) Rylie Schellhardt ( <a href="mailto:rcsgwx@mail.umkc.edu">rcsgwx@mail.umkc.edu</a> )	Dr. Drew Gounev
SCB 385	R	8:00 - 10:50 AM (V06 11607)	Michael Wiles ( <a href="mailto:mwwn9c@mail.umkc.edu">mwwn9c@mail.umkc.edu</a> )	Dr. Drew Gounev
SCB 385	R	2:00 - 4:50 PM (V07 15607)	Dr. Robert Clevenger ( <a href="mailto:rgcdcb@umkc.edu">rgcdcb@umkc.edu</a> ) Buwani PUNCHIHewa ( <a href="mailto:btpgm7@mail.umkc.edu">btpgm7@mail.umkc.edu</a> )	Dr. Drew Gounev

### COURSE INSTRUCTIONAL MODE and FORMAT:

This 1-credit hour LAB course consists of a prelab video that students must watch prior to coming to lab, followed by a laboratory session in on ZOOM with your TA (P (classroom based)).

### CATALOG DESCRIPTION and RESTRICTIONS

CHEM 322L is an extension of CHEM 321L. CHEM 322L builds from the basic techniques, procedures, and writing to more advanced organic operations. Prerequisite: CHEM 321 and CHEM 321L or equivalent (each with a C-or better) Corequisite CHEM 322R; Restrictions/Exclusions: None; Offered: Each Term. Course Attributes: None.

**SOME IMPORTANT DATES FOR SPRING SEMESTER 2020:**

- January 21** Coursework Begins.  
**February 17** Last day to file for May graduation.  
**April 17** Last day to withdraw **without** assessment. After this date, you have to petition to withdraw from the course.

**STUDENT LEARNING OUTCOMES**

Upon completion of Chemistry 322L, students should be able to:

- Apply knowledge obtained in Chem. 322 lecture to problem solving and critical thinking in the laboratory.
- Utilize mathematical knowledge gained from general chemistry to perform common calculations, including mass balance, limiting reagent, and percent yield.
- Engage in safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately, using general guidelines and basic knowledge about the common hazards associated with them in an organic chemistry laboratory.
- Maintain an appropriate scientific notebook using notational and descriptive content containing MSDS information on relevant chemical reagents, experimental procedure followed, data collected, and observations made during the experimental process.
- Assemble glassware and perform the following techniques as a part of synthetic procedures: aqueous workup, distillation, reflux, separation, isolation, and crystallization.
- Predict the outcome of several common organic reaction types through a basic understanding of starting materials, functional groups, mechanism, and typical reaction conditions.
- Characterize prepared substances by physical and spectroscopic means.
- Develop the skill set necessary to continue on to upper level chemistry labs.
- Communicate with other scientists through the writing of a formal scientific paper.

**GENERAL****Pre-requisites and Co-requisite**

A grade of “C-” or better in Organic Chemistry I with lab (CHEM 321/321L), or the equivalent courses, is required for enrollment in this course. The co-requisite is CHEM 322 Lecture.

**Course objectives**

The objective of this course is to provide students with advanced organic laboratory experiences, i.e., performing multi-step organic syntheses and writing scientific reports.

**Pre-lab lectures and announcements**

All classes will convene on ZOOM during the lab session. You will log in to hear announcements from your TA.

**Required materials**

- Mohring et al. Techniques in Organic Chemistry, 4<sup>th</sup> ed.; 2014, W.H. Freeman (ISBN-10: 1464134227 and ISBN-13: 9781464134227). This may be purchased from the UMKC Bookstore.
- A lab notebook capable of making carbon copies (100 pages is a good size). The copies are submitted to your GTA as you leave the lab each session and become part of your report; you retain the originals.
- Padlock, safety glasses, black felt-tip pen with permanent ink (Sharpie).
- Non-graphing calculator (as the one you used in General Chemistry I and II).
- Appropriate clothing (i.e., no shorts, open-toed shoes, etc.).

## GRADING/ASSESSMENT

You will turn in *eight* regular lab reports, **each worth 20 points**. Your lowest lab report score will be dropped (*if you have an "excused" lab, it will your dropped lab*), for a total of **140** points for your reports. The ninth and tenth labs, **Diels-Alder Reaction: Hexaphenylbenzene, Dimethyl tetraphenyl phthalate, 1,2,3,4-Tetraphenyl naphthalene** and **Diels-Alder Reaction: Triptycene** (lab numbers 3 and 4 on the syllabus) have an extended lab write-up and cannot be dropped.

Laboratory Performance and Technique: Now that the course has gone on-line only, your pre-lab assignment will replace this section as part of your grade. More detail is given in pre-lab section.

### Extended Laboratory Write-Ups:

The first extended laboratory write-up will be over the Experimental Part of the Diels-Alder experiments and is worth **20 points**. It will NOT be submitted through TurnItIn in Canvas!

The second extended laboratory write-up will also be over the same Diels-Alder experiments, but will be a full write-up including an Introduction, revised Experimental Part, Results and Discussion, Conclusion and Bibliography. The second laboratory write-up is worth **50 points**. A Tegrity lecture that explains the kinds of information you need to include in both of these labs and some additional information can also be found on the course website. You will be submitting a hard copy of the extended lab report to your lab TA, as well as submitting it to TurnItIn through Canvas.

**Diels-Alder Full Paper:** You will submit a hard copy to your TA during your lab time. You will ALSO submit your full paper (not just the experimental write-up) through Canvas to TurnItIn.com. This is how the entire process will work:

1. You will turn in a hard copy of your complete experimental write-up to your TA on your lab date (see lab schedule for dates).
2. Before midnight on your lab day during the week the experimental write-up is due, you will also login to Canvas and submit your complete experimental write-up.
3. Here are the directions for uploading your experimental write-up:
  - a. Sign in to the Canvas CHEM 321L course site.
  - b. Click on the title of the assignment you need to submit on the **Assignments** link in the left-hand course navigation menu.

#### ▼ Upcoming Assignments



#### 8. Substitution Reactions SN1: triphenylmethanol

Available until Nov 9 | Due Nov 9 at 11:59pm | -/30 pts

- c. Click the **Submit Assignment** button.
- d. Click the **Choose File** button to upload a file from your computer. When the file window appears, locate and click the name of the file. At the bottom of the window, click the **Choose** or **Browse** button (depending on your browser).

e. Click the **Submit Assignment** button.

4. If you do not turn in a hard copy of your experimental write-up to your TA AND submit it to TurnItIn.com (Canvas) you will receive a “0” for this assignment.

### Friday Evening Laboratory Exam:

The lab exam has been cancelled and is no longer required and has been removed from the point total.

### Grading Detail:

<u>Assignment</u>	<u>Total</u>	
8 Lab Experiments (20 points each)	140	(Dropping lowest score)
First Extended Lab Report	20	(Experimental Section from Labs 3 and 4)
Second Extended Lab Report	50	(Diels-Alder Paper)
<b>TOTAL POINTS POSSIBLE</b>	<b>210</b>	

The total amount of points for this class will be **210 points**. Grades will be assigned as follows:

90% and above = A;                      80 – 89.9% = B;                      70 – 79.9% = C;  
60 – 69.9% = D;                          below 60% = F.

Note: You will lose 1 point on anything that you hand in as a lab report for the first occurrence of the following: a spelling error, grammatical error, and partial sentence. Spell-check and proof-read your typed work.

Your lab grades may be checked via Canvas at [Canvas.umkc.edu](http://Canvas.umkc.edu). Your Canvas User ID and Password are the same as your UMKC Exchange/SSO user ID (the alias from your Alias@umkc.edu e-mail address). If you don't know your Exchange/SSO User ID, you can obtain it at [www.umkc.edu/exchange-faq](http://www.umkc.edu/exchange-faq). Lab handouts may also be found on the Canvas site or at the Chemistry 322L course website, which is <http://d.web.umkc.edu/drewa/Chem322L/index322L.html>.

## POLICIES

### Enrollment and Attendance

You must be enrolled in the section you are attending. If you are not enrolled by the end of the second week of classes (January 31<sup>st</sup>), you will be asked to leave the lab. **Attendance is required and will be taken by**

**GTAs at all laboratory classes. The class starts on time and finishes on time. Please observe the following:**

- Students must attend their assigned laboratory section.
- Only substantial and unavoidable reasons (e.g., serious illness, unavoidable out-of-town professional travel, death in the family, or religious observance) should cause students to miss a regularly scheduled lab. You should not miss a lab simply because your lowest score will be dropped!
- **There will be no make-up labs!** All of the organic lab sections are completely full. Even if you have an excused absence, you will be unable to make-up the lab you missed. This will be your dropped lab.
- Things such as doctor/dentist appointments should be scheduled outside of lab times.
- Travel arrangements for holidays and vacations should not be allowed to interfere with your class attendance.

### **Safety and Honesty**

During the first week of classes, safety regulations will be reviewed. You are expected to follow them. When in doubt, ask your GTA or lab instructor. Do not, under any circumstances, use fabricated data or data from another student (past or present). Fabrication of data is academic misconduct, as is plagiarism, cheating and sabotage: you will receive a grade of zero on the tainted work and will be reported to the Chief Academic Officer of your academic unit. Serious and/or repeat offenders will receive an "F" grade for the course and face disciplinary action from the University. It is your responsibility to know and uphold the UMKC rules of academic conduct (<https://catalog.umkc.edu/special-notice/academic-honesty/>).

The Board of Curators of the University of Missouri recognizes that academic honesty is essential for the intellectual life of the University. Faculty members have a special obligation to expect high standards of academic honesty in all student work. Students have a special obligation to adhere to such standards. Academic dishonesty, including cheating, plagiarism or sabotage, is adjudicated through the [University of Missouri Student Conduct Code](#) and [Rules of Procedures in Student Conduct Matters](#). It is your responsibility to know and uphold the UMKC rules (and those of your academic unit) of academic conduct.

*During the check-in week of the lab, you will be asked to sign a statement that you understand the safety regulations and academic honesty policy, and agree to adhere to them. A copy of these regulations is provided.*

### **Laboratory**

You must provide a padlock for your glassware drawer. You are responsible for maintaining the glassware clean and in good condition and for keeping your equipment drawer clean. Even though you are expected to take appropriate care with equipment and glassware, it is reasonable to expect a small amount of breakage. Notify the GTA as soon as possible if something is broken; you will be issued a replacement. No student will receive a grade for the course until he/she has checked out at the end of the semester.

### **Lab Reports**

The due dates for lab reports are listed in the class schedule accompanying the syllabus. **Lab reports must be uploaded into Canvas at the beginning of the pre-lab lecture in order to get a grade for the lab. Late lab reports will not be accepted.** No exceptions will be made now that the class has moved on-line.

### **Regrade and Grievance Policy**

**Regrade requests for the lab reports should be submitted to the GTA by e-mail (and copy Dr. Drew) as soon as possible, and no later than within one week of receiving the graded lab report.** The GTA may decide to pass certain regrade requests to the instructor. Any other grievances about the class should be first taken up with the instructor. After contact with the instructor, further comments and complaints may be addressed to the Chemistry Department Chair. **Please know that if you copy postlab answers from other students, Google, or paid websites like Chegg, Course Hero, etc., you will automatically receive a 0/20 for your lab grade (first offense). After that additional measures will be taken! If you plagiarize your Diels-Alder experimental write-up or paper, you will be given a zero for the assignment and additional measures may be taken.**

**LAB NOTEBOOKS**

- Reread pages 32-40 in Mohrig et al.
- Each experiment should begin on a new page.
- *Put your name, your section, your TA's name on top of every page in every experiment.*
- Make every entry in your notebook in ink, never in pencil. Do not erase or black out entries. Instead, ~~draw a line through the error~~ and add the new information.
- Record all laboratory observations and data directly in the lab notebook at the time they are observed. Do not use scratch paper. Do not expect to transcribe any information into your notebook at a later time. Carbon copies of your notebook entries should be stapled and handed in at the end of every laboratory session. Your typed reports must draw on data and observations recorded in your lab notebook.
- Organize your lab notebook using headings such as *Title, Purpose, Procedure, Observations, Apparatus or Glassware set-up, Balanced reaction or Mechanism, and Purification.*
- Do not, under any circumstances, use fabricated data or data from another student.

**LAB REPORTS**

For each experiment you will upload to Canvas in separate locations (1) the white (original) copies of pre-lab and data from your lab notebook and (2) a completed post-lab report from the previous week's lab, *on the scheduled due date, during the first hour of your lab time.* Your report will consist of these two separate submissions.

Your pre-lab assignment and lab notes/observations will be **handwritten in pen**; your post-lab report should be **typewritten**, with the exception of structures and mechanisms, which should be hand-drawn in pen. Anything in pencil will not be graded.

The individual lab handouts will be available for download at the course website and you can type directly on them. They will be up the Monday before the week of that lab. Please make sure that all calculations in your post-lab report show all your work! When you are showing limiting reactant calculations, the mole-to-mole ratio between the reactant and product must be clearly shown!

\*Also please note that in post-lab reports, numbers should never begin with a decimal and units must be given (even if they are implied)! Additionally, melting points that are measured are given as a range, not as a single temperature, and are reported in °C. An example is:

Initial weight of salicylic acid	0.198 g
Volume of water used to recrystallize salicylic acid	2.50 mL
melting point of compound above (°C)	158-160 °C

**Before lab ⇒ Pre-lab****Pre-Lab Videos**

**Before** each lab period, you are expected to watch a pre-lab video pertaining to that week's experiment. These videos were created by two former undergraduate students in an effort to better prepare you for organic lab and to enhance your learning experience here. Each week's video can be found under that week's lab at the course website <http://d.web.umkc.edu/drewa/Chem321L/index321L.html>. When you enter the lab, it is expected that you have already watched that week's video!

**PRE-lab** ⇒ After watching the pre-lab video, you are expected to write a complete prelab assignment just as you had done before classes were converted to on-line. You must write in the procedure fully in your lab notebook. You should be thorough enough so that you could perform the experiment from what you have written. You will need to use a scanner app to take a picture of your Prelab assignment as one document and upload in Canvas under “Assignments”, find “Pre-Lab Assignments” then “Prelab X” (the lab number you are looking for). If you have a morning lab, it must be uploaded before 9am or you receive a 0/20 points on the postlab grade (as if you did not attend lab) and Canvas will not allow you to upload it after that time. If you have an afternoon lab, it must be uploaded before 3pm or you receive a 0/20 points on the postlab grade (as if you did not attend lab) and Canvas will not allow you to upload it after that time. You will receive up to 10 points for your prelab assignment being complete and submitted on time. If you do not submit a complete prelab assignment on time, you will receive a “0” for the lab as if you missed the lab. The TAs are looking for: 1 point for the net equation, 3 points for a complete Table of quantities and Physical Constants, 2 point for chemical hazards, and 4 points for a complete procedure. The prelab assignments show in Canvas as being worth 0 points. That is because your prelab and postlab points are added together to make a grade out of 20 points. However, if you do not submit a prelab assignment on time, your postlab will not be graded and you will receive a “0” for the entire lab.

The pre-lab in your notebook **at a minimum** should contain the following


- **Title:** Begin each experiment *on a new page* with a title, your name, the date, your TA’s name and your lab section.
- **Purpose:** A brief statement of the experimental objectives
- **Net equation:** Include for all important reactions (found in handout).
  - **Table of quantities and physical constants:** Collect in tabular form the name, structure, formula, molecular weight, and density of any substance whose mass or volume you must measure (make sure you include units where appropriate!). Some of this information can be found in the handouts.
    - ⇒ That which is not in the handouts can be looked up in *The Aldrich Chemical Company Catalog*, *The Merck Index*, *The CRC Handbook of Chemistry and Physics*, and on-line at <http://www.sigmaaldrich.com/united-states.html>. Click on SDS to see safety data sheet.

Search term: "salicyclic acid" ✕

21 matches found for salicyclic acid Sort By Relevance ▾

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**Salicylic acid**  
13 Product Results | Match Criteria: CAS Number Properties ▾



Synonym: 2-Hydroxybenzoic acid

Linear Formula:  $2\text{(HO)C}_6\text{H}_4\text{CO}_2\text{H}$  | Molecular Weight: 138.12 | CAS Number: 69-72-7

<input type="checkbox"/>	<b>S5922</b> BioXtra, ≥99.0% (Sigma)	◇ SDS   pricing ▾
<input type="checkbox"/>	<b>S7401</b> plant cell culture tested (Sigma)	◇ SDS   pricing ▾
<input type="checkbox"/>	<b>247588</b> ACS reagent, ≥99.0% (Sigma-Aldrich)	◇ SDS   pricing ▾
<input type="checkbox"/>	<b>84210</b> puriss. p.a., ≥99.0% (T) (Sigma-Aldrich)	◇ SDS   pricing ▾
<input type="checkbox"/>	<b>27301</b> meets analytical specification of Ph. Eur., BP, USP, 99.5-100.5% (calc. to the dried substance) (Sigma-Aldrich)	◇ SDS   pricing ▾

- **Procedure:** Provide an outline of the experimental procedure to be carried out. Do not simply copy what is written in the handouts; use your own words and diagrams. It is often useful to construct a flow chart of the procedure. This is what you will use to complete your experiment, so make sure you can follow it!

**Example of how to setup your lab notebook. Before the Experiment Begins.** See <http://d.web.umkc.edu/drewa/Chem321L/index321L.html> and look under “lab notebook example” to see what your lab notebook should contain.

**Experiment Title:**  
**Course: Chemistry 322L**

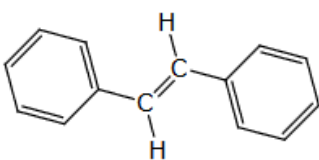
**Date:**  
**Section:**

**Name:**  
**TA Name:**

**Purpose:** (Purpose of the experiment; write a brief (1-3 sentences) statement of purpose for the synthesis or analysis, or state the question you are addressing)

**Balanced Chemical Reaction:** (Write balanced chemical equations that show the overall process, not a mechanism)

**Table of Physical Quantities:** (Include all reagents and solvents: name of reagent or solvent, molecular formula, molecular structure, molecular weight, melting point (solids) or boiling point (liquids), density, hazards). Water must ALWAYS be included!

Compound	Molecular formula	Molecular structure	Molecular Weight (g/mol)	Melting or Boiling Point (°C)	Density (g/mL)
<i>trans</i> -Stilbene	C <sub>14</sub> H <sub>12</sub>		180.25	mp 122-124 °C bp 305-307 °C	1.74
Ethanol					
47% Hydrobromic Acid					
30% Hydrogen Peroxide					
Sodium Bicarbonate					
1,2-Dibromo-1,2-diphenylethane					

Name	Hazards (According to MSDS)
<i>trans</i> -Stilbene	Harmful if swallowed; Irritating to the eyes.

**Procedure:** (This is a procedural outline of what you are doing in the experiment. Remember, you will not be allowed to bring your lab report to class so it is important that you have the details of the experiment here. Leave space between lines here for any corrections that the GTA gives you to the procedures.)

**During the Laboratory Session.**

**ZOOMING IN DURING LAB ⇒**



After spring break, we will use Zoom for live streaming “lab”. Your TAs will be on Zoom in Canvas called “ZOOM UMSystem” in the Canvas course menu for the first hour of your lab minimum. I expect you to be there too to ask questions or hear any updates they want to share with you. After that hour, they will close the room if no one has additional comment or questions. You are expected to be on-line using ZOOM during your lab time. You are also expected to login on time. Attendance will be taken by the TAs. They are there to answer questions and provide additional information.

I will e-mail out data for each lab on a weekly basis. This data is for you to use to complete your postlab assignment.

#### POST lab ⇒ **Summary of results and lab report (typed; CANNOT be hand-written)**

You will need to type all of the information required. All calculations must be explicitly included and type-written. If your handout includes post-lab questions, type the answers to them in the appropriate space in “Post-lab Report”. Figures, structures and mechanisms are to be hand-drawn in **ink** (not in pencil). Spell-check and proof-read your typed work (see GRADING). If you submit a completed pre-lab on time AND completed postlab on time, you will receive up to 10 points for the postlab (points based on your correct answers). The prelab assignments show in Canvas as being worth 0 points. That is because your prelab and postlab points are added together to make a grade out of 20 points.

You will need to use a scanner app to take a picture of your Postlab as one document and upload in Canvas under “Assignments”, find “Assignments” then “Lab X” (the lab number you are looking for). If you have a morning lab, it must be uploaded before 9am or you will lose 10/20 points on the postlab (assuming you uploaded your prelab on time) and Canvas will not allow you to upload it after that time. If you have an afternoon lab, it must be uploaded before 3pm or you will lose 10/20 points on the postlab (assuming you uploaded your prelab on time) and Canvas will not allow you to upload it after that time. Late lab submissions for absences will no longer be allowed, so do not wait until the last minute to complete your report. When your reports have been graded, the grader will make notes in Canvas regarding what you missed so you can know what your point deductions were. If you did not submit a prelab assignment on time, your postlab will not be graded and you will receive a “0” for the entire lab.

#### **RESOURCES AND POLICY STATEMENTS**

Important UMKC Resources and Policies are applicable to every course and every student at UMKC. These are located in the Canvas site for this course under the “Help” tab => then “UMKC Resources & Policy Statements Home” => then “UMKC Resources & Policy Statements (AY 2019-2020)”. As a UMKC student, you are expected to review and abide by these policies. If you have any questions, please contact your instructor for clarification.

This course follows the “Faculty not allowing recording” option of the Academic Inquiry, Course Discussion and Privacy policy.

#### **School of Biological and Chemical Sciences Course Policies & Resources**

Please refer to the following web page and the linked resources for critical information regarding course policies and resources. You are expected to abide by all the rules and regulations regarding student conduct referenced in these pages. <https://sbc.umkc.edu/current-students/forms-resources.html>

#### **Chemistry 322L Schedule of Labs**

Week	Lab	Due Date
January 20-24	Check-in	
January 27-31	1. X <sub>2</sub> Addition to Alkenes: Bromination of <i>trans</i> -stilbene	February 3-7
February 3-7	2. Epoxidation of Cholesterol	February 10-14
February 10-14	3. Diels-Alder Reaction: Hexaphenylbenzene, Dimethyl tetraphenyl phthalate, 1,2,3,4-Tetraphenylnaphthalene	1. Extended write-up of all <u>4</u> experimental sections (including Triptycene is due March 2-6. 2. Diels-Alder (full) paper with corrected experimental section is due March 16-20.
February 17-21	4. Diels-Alder Reaction: Triptycene	
February 24-28	4. Diels-Alder Reaction: Triptycene	
March 2-6	5. Acylation of Ferrocene	March 9-13
March 9-13	6. Alkylation of Biphenyl and <i>Para</i> -Dimethoxybenzene	March 16-20
March 16-20	7. Nitration of Methyl Benzoate	March 30-April 3
March 23-27	No LABS! (Spring Break)	
March 30-April 3	8. Wittig Reaction	April 6-10
April 6-10	9. Aldol Condensation	April 13-17
April 13-17	10. Synthesis of Banana Oil	April 20-24
April 20-24	Upload Postlab 10 to Canvas	
April 27-May 1	Nothing Scheduled	
<b>May 1 (Friday)</b>	<b>NO FINAL EXAM</b>	

**A copy of this statement will be provided for your signature before the first experiment**

**CHEM 322L Laboratory Safety Regulations: Initial the items and sign the bottom.**

Semester Spring 2020 Section VO Room # BSB 385

TA Name \_\_\_\_\_ HOOD # \_\_\_\_\_

1. \_\_\_\_\_ I will prepare for lab by studying the experiment before class (including watching the prelab video that corresponds to each experiment) and by trying to anticipate potential hazards from the chemicals or procedures to be used.
2. \_\_\_\_\_ I will wear approved safety goggles AT ALL TIMES in the laboratory.
3. \_\_\_\_\_ I will not work in the lab unless an instructor or teaching assistant is present.
4. \_\_\_\_\_ I will not perform any unauthorized experiments.
5. \_\_\_\_\_ I will notify the instructor of health conditions (allergies, pregnancy, epilepsy, etc.) that may affect my ability to work in a chemistry lab.
6. \_\_\_\_\_ I will not eat, drink, chew gum, or smoke in the lab.
7. \_\_\_\_\_ I will not use cellular phones, radios, headphones, or other electronic devices in the lab.
8. \_\_\_\_\_ I will minimize my contact with chemicals by taking care to note odors, never tasting chemicals, using suction bulbs to fill pipettes, and washing any spilled chemicals off my person as soon as possible. I will wash my hands before leaving the lab.
9. \_\_\_\_\_ I will not wear shorts, sandals (or open-toed shoes), tank tops, or other clothing in the lab that allows unnecessary exposure to spilled chemicals. I am also aware that certain chemicals can ruin clothing and that wearing a lab coat or apron adds some degree of protection.
10. \_\_\_\_\_ I will secure long hair to keep it away from open flames and chemicals while I am working in the lab.
11. \_\_\_\_\_ I will immediately report all cuts, burns, personal injuries, fires, chemical spills, or other accidents to the instructor or teaching assistant.
12. \_\_\_\_\_ I will keep my work area and the common areas of the lab clean.
13. \_\_\_\_\_ I will NOT return unused chemicals to their original bottles.
14. \_\_\_\_\_ I will consult with the instructor or teaching assistant about the proper disposal of all waste chemicals.
15. \_\_\_\_\_ I know the location, operation, and appropriate uses of the eye-wash stations, safety showers, fire extinguishers, fire alarms, and fume hoods; and I know the locations of all lab exits.
16. \_\_\_\_\_ I agree to follow any specific or additional safety instructions that may be given for any experiments.
17. \_\_\_\_\_ I will conduct myself in a professional and respectful manner. I will leave the lab after I complete my work.

I understand all of these statements and agree to observe them at all times in the lab. I also understand that if I fail to observe them, I will be expelled from the laboratory.

**CHEM 321L Academic Honesty Statement**

I will perform the work by myself and will answer any postlab questions independently; I will only report data values that I have measured myself during lab; and I will adhere to the UMKC Academic Conduct Standards for Students ([https://www.umsystem.edu/ums/rules/collected\\_rules/programs/ch200/200.010\\_standard\\_of\\_conduct](https://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.010_standard_of_conduct)). I have read and understand Chapter 200: Student Conduct from the UM System's Collected Rules and regulations. It is my responsibility to understand the facets of academic honesty and to uphold them. If I am not sure, I will consult with the instructor.

**Sign:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Print Name:** \_\_\_\_\_