Organic Chemistry Lab I (Chemistry (CHEM) 321L, 1 credit) Syllabus

Organic Lab Coordinator: Dr. Andrea Drew Gounev
Teaching Professor, Department of Chemistry
Office: Flarsheim Hall 510D,
Contact: drewa@umkc.edu (preferred) or 816-235-2257
Office Hours W 9:00am-10:00am, and by appointment
through UMKC Connect in Blackboard
Course Instructional Mode: P (classroom (lab) based)

Course Website: http://d.web.umkc.edu/drewa/Chem321L/index321L.html

<table>
<thead>
<tr>
<th>Meets</th>
<th>Day</th>
<th>Time</th>
<th>Teaching Assistants (Office Hours on Blackboard)</th>
<th>Instructor in charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCB 212</td>
<td>M</td>
<td>2:00 - 4:50 PM (V01) 40166</td>
<td>Dattatray Sawant (<a href="mailto:dks6gc@mail.umkc.edu">dks6gc@mail.umkc.edu</a>)</td>
<td>Dr. Drew Gounev</td>
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<tr>
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<td>Kyung-Shin Suh (<a href="mailto:ksmq2@mail.umkc.edu">ksmq2@mail.umkc.edu</a>)</td>
<td></td>
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<tr>
<td>SCB 212</td>
<td>T</td>
<td>8:00 - 10:50 AM (V03) 40168</td>
<td>Reid Brenner (<a href="mailto:reb4h8@mail.umkc.edu">reb4h8@mail.umkc.edu</a>)</td>
<td>Dr. Drew Gounev</td>
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<td>Zishen Yang (<a href="mailto:zy7x9@mail.umkc.edu">zy7x9@mail.umkc.edu</a>)</td>
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<tr>
<td>SCB 212</td>
<td>T</td>
<td>11:00AM - 1:50 PM (V09) 44489</td>
<td>Zishen Yang (<a href="mailto:zy7x9@mail.umkc.edu">zy7x9@mail.umkc.edu</a>)</td>
<td>Dr. Drew Gounev</td>
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<td>Fei Wu (<a href="mailto:fww77@mail.umkc.edu">fww77@mail.umkc.edu</a>)</td>
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<tr>
<td>SCB 212</td>
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<td>Reid Brenner (<a href="mailto:reb4h8@mail.umkc.edu">reb4h8@mail.umkc.edu</a>)</td>
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<td>Hannah Straley (<a href="mailto:hks44f@mail.umkc.edu">hks44f@mail.umkc.edu</a>)</td>
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<td>Dr. Drew Gounev</td>
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<td>Morgan Staudinger (<a href="mailto:mbsrkf@mail.umkc.edu">mbsrkf@mail.umkc.edu</a>)</td>
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<td>SCB 212</td>
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<td>8:00 - 10:50 AM (V06) 40171</td>
<td>Dattatray Sawant (<a href="mailto:dks6gc@mail.umkc.edu">dks6gc@mail.umkc.edu</a>)</td>
<td>Dr. Drew Gounev</td>
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<tr>
<td>SCB 212</td>
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<td>2:00 - 4:50 PM (V05) 40170</td>
<td>Fei Wu (<a href="mailto:fww77@mail.umkc.edu">fww77@mail.umkc.edu</a>)</td>
<td>Dr. Drew Gounev</td>
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<td>Kyung-Shin Suh (<a href="mailto:ksmq2@mail.umkc.edu">ksmq2@mail.umkc.edu</a>)</td>
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<td>Dr. Drew Gounev</td>
</tr>
<tr>
<td>SCB 212</td>
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<td>Hannah Straley (<a href="mailto:hks44f@mail.umkc.edu">hks44f@mail.umkc.edu</a>)</td>
<td>Dr. Drew Gounev</td>
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<td>Zishen Yang (<a href="mailto:zy7x9@mail.umkc.edu">zy7x9@mail.umkc.edu</a>)</td>
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</table>

COURSE INSTRUCTIONAL MODE and FORMAT:

This 1-credit hour LAB course consists of a 30 minute prelab lecture (which will occur in the room listed in the table above) followed by a laboratory session in SCB 217 or 220 (P (classroom based)).
CATALOG DESCRIPTION

CHEM 321L introduces the student to basic techniques and procedures in isolation, purification, and characterization of organic compounds and simple reactions used in the organic chemistry laboratory. The student will also be trained in the proper way to write a scientific laboratory report. Prerequisites: CHEM 211/CHEM 211L and CHEM 212/CHEM 212L or their equivalents (each with a C-or better); Corequisite CHEM 321; Restrictions/Exclusions: None; Offered: Each Term; Course Attributes: None.

STUDENT LEARNING OUTCOMES

Upon completion of Chemistry 321L, students should be able to:

• Apply knowledge obtained in Chemistry 321 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 Chemistry 322L.

GENERAL

Pre-requisites and Co-requisite
A grade of “C-” or better in General Chemistry I and II with lab (CHEM 211/211L and 212R /212LR), or the equivalent courses, is required for enrollment in this course. There is also a co-requisite of CHEM 321 Lecture.

Pre-lab lectures and announcements
All classes will convene in room C212 in the Spencer Chemistry Building before entering the lab for class announcements, pre-lab lectures, and submission of lab reports. Attendance will be taken in pre-lab.
Required materials
- 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. This may be purchased from the UMKC Bookstore.
- Padlock, safety glasses, any color felt-tip pen with permanent ink (Sharpie).
- Non-graphing calculator (like the one you used in General Chemistry I and II).
- Appropriate clothing (i.e., no shorts, open-toed shoes, etc.).

GRADING/ASSESSMENT

During the pre-lab lecture, the GTAs will tell you what you need to hand in for your report on that lab. You will turn in nine lab reports, each worth 20 points (an additional lab (lab number 8) is an extended lab report and is worth 30 points). Your lowest lab score (from the twenty point labs) will be dropped (if you have an “excused” lab, it will be your dropped lab), for a total of 190 points for your reports.

Laboratory Performance and Technique:
Part of the grade for each lab report will include a score for laboratory performance and technique. You are expected to be prepared for lab, maintain your drawer, space and wastes appropriately, wear safety goggles/glasses and proper attire at all times while in the lab, and follow all check-in and check-out procedures. You will have points deducted for tardiness, lack of preparation, non-completion of lab or other infractions of safety and good lab practice.

Evening Laboratory Exam:
There is one cumulative laboratory exam, worth 100 points, which will be held in the evening so all sections can take the exam at the same time. Please mark it in your calendar and bring a calculator.

⇒ LAB EXAM: DECEMBER 2 (Friday) from 6:00pm-7:00pm in Royall Hall 111.

Experimental Laboratory Write-Up:
The experimental laboratory write-up (lab number 8) will be over the lab called “Substitution Reactions S_N1: triphenylmethanol” and is worth 30 points. The GTAs will tell you what kind of information you need to include in this lab. If you want to do well on this assignment, please read carefully all the information posted on the course webpage that explains how to correctly develop an experimental write-up.

Experimental Write-Up: You will submit a hard copy to your TA during your lab time. You will ALSO submit your experimental write-up through Blackboard 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 Blackboard and submit your complete experimental write-up.
3. Here are the directions for uploading your experimental write-up:
a. In Blackboard, click on “Assignments” on the left-hand margin.
b. You need to click “I Agree—Continue” to TurnItIn’s usage agreement.
c. Look in the middle and see “Substitution Reactions SN1 Experimental Write-up” and to the right of it click on “Submit”.
d. Enter your First name.
e. Enter your Last name.
f. Enter your Submission Title (the title of your experimental write-up).
g. Click on BROWSE to find your experimental write-up on your computer and attach it.
h. After you have attached it, click “Submit”.

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

Grading Detail:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Total</th>
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<tbody>
<tr>
<td>9 Lab Experiments (20 points each)</td>
<td>160</td>
</tr>
<tr>
<td>1 Experimental Write-Up Lab Report</td>
<td>30</td>
</tr>
<tr>
<td>Lab Exam</td>
<td>100</td>
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<tr>
<td><strong>TOTAL POINTS POSSIBLE</strong></td>
<td><strong>290</strong></td>
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</table>

The total amount of points for this class will be **290** 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. Anything written in pencil will not be graded.

Your lab grades may be checked via Blackboard at Blackboard.umkc.edu. Your Blackboard User ID and Password are the same as your UMKC Exchange/SSO user ID (the alias from your Alias@mail.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. Lab handouts may also be found on the Blackboard site or at the Chemistry 321L course website http://d.web.umkc.edu/drewa/Chem321L/index321L.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 (September 2nd), 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-notices/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 turned in at the beginning of the pre-lab lecture prior to entering the laboratory. Late lab reports will never be accepted. No exceptions will be made. However, IF you miss a lab and a report was due that day (from the lab you did the week before), you have extra 2 days to bring that lab directly to MY OFFICE.

**Regrade and Grievance Policy**
Regrade requests for the lab reports should be submitted to the GTA 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.

**LAB NOTEBOOKS**

- Read 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. Anything in pencil will not be graded. 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 hand in (1) the carbon copies of pre-lab and data and observations pages from your lab notebook before leaving the lab and (2) a completed post-lab report from the previous week’s lab, on the scheduled due date, before leaving the pre-lab. Your report will consist of these two 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!

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:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Initial weight of salicylic acid</td>
<td>0.198 g</td>
</tr>
<tr>
<td>Volume of water used to recrystallize salicylic acid</td>
<td>2.50 mL</td>
</tr>
<tr>
<td>melting point of compound above (°C)</td>
<td>158-160 °C</td>
</tr>
</tbody>
</table>

Before lab ⇒ Pre-lab

Pre-Lab Videos
Before each lab period, you are expected to watch two videos pertaining to each experiment. These videos were created by one of our graduate students, Christopher Knudtson, in an effort to better prepare you for organic lab and to enhance your learning experience there. The videos can be found at http://caknudtson.weebly.com/org-chem-lab.html. The first video associated with each lab is an instructional video that details the theory behind each experiment, and the second is a prelab video that demonstrates each experiment you will be performing in the lab and the techniques associated with it. When you enter the lab, it is expected that you have already watched both videos!
Pre-Lab Assignment
You need to write in the procedure fully in your lab notebook because the handouts are not allowed in the lab. You should be thorough enough so that you can perform the experiment from what you have written. Any changes to the lab will be announced in the pre-lab lecture and need to be noted in your lab book. When you arrive in lab, your GTA will sign your notebook pages ensuring that you have completed the required pre-lab. If not, you will not be allowed to start the experiment. You will have to leave the lab, complete the pre-lab, and then return to the lab but all labs will stop by the end of the lab section. No time extensions are allowed.

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.


  ⊳ From search at [http://www.sigmaaldrich.com/united-states.html](http://www.sigmaaldrich.com/united-states.html). Next click on SDS to see safety data sheet.

- **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 (this will be in pen)

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: Date: Name:
Course: Chemistry 321L Section: 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)-see page 1 or 2 of the lab. IF there is one, it will be found there.

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! Search at http://www.sigmaaldrich.com/united-states.html. Next click on SDS to see safety data sheet.

<table>
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<tr>
<th>Name (Other names)</th>
<th>Molecular formula</th>
<th>Molecular structure</th>
<th>Molecular Weight (g/mol)</th>
<th>Melting or Boiling Point (°C)</th>
<th>Density (g/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salicylic Acid (2-Hydroxybenzoic acid and o-Hydroxybenzoic acid)</td>
<td>C_{7}H_{6}O_{3}</td>
<td><img src="image" alt="Molecular Structure" /></td>
<td>138.12 g/mol</td>
<td>MP = 159°C</td>
<td>1.4 g/mL</td>
</tr>
<tr>
<td>Benzoic Acid</td>
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<td>Phthalic Acid</td>
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<td>Naphthalene</td>
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<td>Biphenyl</td>
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<tr>
<td>Ethanol</td>
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<table>
<thead>
<tr>
<th>Name</th>
<th>Hazards (According to MSDS)</th>
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<tbody>
<tr>
<td>Salicylic Acid</td>
<td>HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. AFFECTS CENTRAL NERVOUS SYSTEM, KIDNEYS, AND PANCREAS. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.</td>
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</tbody>
</table>

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

**Data and observations (hand-written in your lab notebook)**
Maintaining good experimental records is an essential part of the laboratory work. For all experiments, record what was done, including amounts (in g or mL, and in mol or mmol) of the compounds used, and your observations (i.e., changes in appearance, color, temperature, precipitation, evolution of gas). Also, where applicable, include work-up, isolation, and purification techniques used, isolated yields (in g or mL and in percents), and appearance of the final product (physical state, color, texture, smell).
Carbon copies of these pages will be stapled together and submitted before leaving the lab. Failure to turn in those pages counts as an absence. If an absence for a lab is recorded, a grade of “0” is unavoidable.

**Observations:** Record all observations that take place while you are performing your experiment in your lab notebook. This includes:
- Actual quantities (with units) of all reagents used.
- Amounts of crude and purified products (with units) obtained
- Mention measurements you took (temperature, time, melting point, and so on)
- Smells
- Color changes

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After the Laboratory Session

**Summary of results and lab report (typed; CANNOT be hand-written)**
You will receive a list of what is required for that lab during your pre-lab lecture. The post-lab report can be found on the CHEM 321L course website. It is a Word file that you can save to your computer and type directly on. You will need to type all of the information required for the post-lab. 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). Any work submitted in pencil will not be graded. Your typed reports will be cross-checked against your lab notes. Spell-check and proof-read your typed work (see GRADING).

Your post-lab reports will be collected on the date they are due, in the pre-lab room.

Do NOT submit your lab reports to Chemistry Office!

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**SOME IMPORTANT DATES for FALL SEMESTER 2016**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>August 22</td>
<td>Course Work Begins</td>
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<tr>
<td>September 19</td>
<td>Last Day to file for December (FS2016) Graduation</td>
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<tr>
<td>October 14</td>
<td>Last Day to Withdraw With “W”.</td>
</tr>
<tr>
<td>November 11</td>
<td>Last Day to Withdraw With “W” or “WF” (undergrad). <strong>PLEASE NOTE:</strong> I only give Withdrawal (Passing) unless academic dishonesty (cheating, plagiarism, etc.) is involved.</td>
</tr>
</tbody>
</table>
Resources & Policy Statements

Academic Calendar: Students are encouraged to review important add, drop or withdraw dates: http://www.umkc.edu/registrar/acal.asp

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.

(Academic units may have additional student codes of behavior to be referenced, i.e. Honor Codes.)

Academic Inquiry, Course Discussion and Privacy:
Faculty not allowing recording - University of Missouri System Executive Order No. 38 lays out principles regarding the sanctity of classroom discussions at the university. The policy is described fully in Section 200.015 of the Collected Rules and Regulations. In this class, students may not make any audio or video recordings of course activity (including those recordings prepared by an instructor), except students permitted to record as an accommodation under Section 240.040 of the Collected Rules. All other students who record and/or distribute audio or video recordings of class activity are subject to discipline in accordance with provisions of Section 200.020 of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters.

Those students who have written permission from the course instructor to record are not permitted to redistribute any audio or video recordings of statements or comments from the course to individuals who are not students in the course without the express permission of the faculty member and of any students who are recorded, including those recordings prepared by an instructor. Students found to have violated this policy are subject to discipline in accordance with provisions of Section 200.020 of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters.

Attendance Policy: Students are expected to attend and participate in classes. Advance notice of attendance policies of academic units and individual instructors should be given, and such notice should be in writing. Students should notify instructors of excused absences in advance, where possible. Students who have an excused absence are expected to make arrangements with instructors for alternative or make-up work. Such arrangements should be made in advance of the absence, where possible. Instructors should accommodate excused absences to the extent that an accommodation can be made that does not unreasonably interfere with the learning objectives of the course or unduly burden the instructor. Attendance policies shall be applied in a non-discriminatory manner.

Campus Safety: Inclement weather, mass notification, and emergency response guide: http://www.umkc.edu/umkalert/

Counseling and Health Services Available at UMKC: UMKC students may experience many challenges in their lives while attending college – stress, depression, suicidality, trauma, relationship issues, health concerns, etc. As your professor I care about your success and well-being, and want to make you aware of some helpful resources on campus. The UMKC Counseling Center (www.umkc.edu/counselingcenter), located at 4825 Troost in Room 206, offers a wide range of supportive services to students. Appointments can be made by calling 816.235.1635. UMKC Student Health and Wellness (http://info.umkc.edu/studenthealth/), located at 4825 Troost in Room 115, offers a full range of health care and promotion services. Appointments can be scheduled online or by calling 816.235.6133. The MindBody Connection (www.umkc.edu/mindbody) is located in the Atterbury Student Success Center in Room 112 and offers a variety of stress-reduction services.

Disability Support Services: To obtain disability related accommodations and/or auxiliary aids, students with disabilities must contact the Office of Services for Students with Disabilities (OSSD) as soon as possible. To contact OSSD, call (816) 235-5696. Once verified, OSSD will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. For more information go to: http://www.umkc.edu/disability/


**English Proficiency Statement:** Students who encounter difficulty in their courses because of the English proficiency of their instructors should speak directly with their instructors. If additional assistance is needed, students may contact the UMKC Help Line at 816-235-2222 for assistance.

**Grade Appeal Policy:** Students are responsible for meeting the standards of academic performance established for each course in which they are enrolled. The establishment of the criteria for grades and the evaluation of student academic performance are the responsibilities of the instructor. The **University grade appeal procedure** is available only for the review of allegedly capricious grading and not for review of the instructor's evaluation of the student's academic performance. Capricious grading, as that term is used here, comprises any of the following:

- The assignment of a grade to a particular student on some basis other than the performance in the course;
- The assignment of a grade to a particular student according to more exacting or demanding standards than were applied to other students in the course; (Note: Additional or different grading criteria may be applied to graduate students enrolled for graduate credit in 300- and 400-level courses.)
- The assignment of a grade by a substantial departure from the instructor's previously announced standards.

**Discrimination Grievance Procedures for Students:** Discrimination Grievance Procedures for Students can be found here: [http://www.umsystem.edu/ums/rules/collected_rules/grievance/ch390/grievance_390.010](http://www.umsystem.edu/ums/rules/collected_rules/grievance/ch390/grievance_390.010)

**Statement of Human Rights:** The Board of Curators and UMKC are committed to the policy of equal opportunity, regardless of race, color, religion, sex, sexual orientation, national origin, age, disability and status as a Vietnam era veteran. Commitment to the policy is mentored by the Division of Diversity, Access & Equity, but it is the responsibility of the entire university community to provide equal opportunity through relevant practices, initiatives and programs.

**Title IX:** Under the University of Missouri’s Title IX policy, discrimination, violence and harassment based on sex, gender, and gender identity are subject to the same kinds of accountability and support applied to offenses based on other protected characteristics such as race, color, ethnic or national origin, sexual orientation, religion, age, ancestry, disability, military status, and veteran status. If you or someone you know has been harassed or assaulted, you can find the appropriate resources by visiting UMKC’s Title IX Office webpage ([http://info.umkc.edu/title9/](http://info.umkc.edu/title9/)) or contacting UMKC’s Title IX Coordinator, Mikah K. Thompson (816.235.6910 or [thompsonmikah@umkc.edu](mailto:thompsonmikah@umkc.edu)). Additionally, you can file a complaint using UMKC’s online discrimination complaint form, which is located at [http://info.umkc.edu/title9/reporting/report-online/](http://info.umkc.edu/title9/reporting/report-online/).

While most UMKC employees are required to report any known or suspected violation of Title IX, students may seek confidential guidance from the following campus locations:

<table>
<thead>
<tr>
<th>UMKC Counseling Service</th>
<th>UMKC Counseling Service</th>
<th>Student Health and Wellness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volker Campus</td>
<td>Health Sciences Campus</td>
<td></td>
</tr>
<tr>
<td>4825 Troost Ave, Suite 206</td>
<td>Health Sciences Building 1418</td>
<td>4825 Troost Ave., Suite 115</td>
</tr>
<tr>
<td>Kansas City, MO 64110</td>
<td>2464 Charlotte</td>
<td>Kansas City, MO 64110</td>
</tr>
<tr>
<td>Phone – (816) 235-1635</td>
<td>Kansas City, MO 64108</td>
<td>Phone - (816) 235-6133</td>
</tr>
<tr>
<td></td>
<td>Phone – (816) 235-1635</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(open Tuesdays, 1-5pm)</td>
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</table>

**UMKC Connect:** Important information is available to undergraduate students in UMKC Connect accessed through Blackboard. Throughout the term, students may receive emails regarding course grades or academic performance. Students are expected to address information posted in a timely fashion. This information may be shared with the student’s Success Network made up his or her academic advisor(s) and other campus resources so that UMKC may fully support the student’s success.

**College of Arts & 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. [http://cas.umkc.edu/CPR/](http://cas.umkc.edu/CPR/)
<table>
<thead>
<tr>
<th>Week</th>
<th>Lab</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 22-26</td>
<td>Check-in: Introduction; notebook requirements; lab safety and waste disposal; wash glassware <strong>(MANDATORY)</strong></td>
<td></td>
</tr>
<tr>
<td>August 29-September 2</td>
<td>1. Crystallization: Recrystallization</td>
<td>September 12-16</td>
</tr>
<tr>
<td>September 5-9</td>
<td><strong>No LABS!</strong> (Labor Day Holiday)</td>
<td></td>
</tr>
<tr>
<td>September 12-16</td>
<td>2. Distillation: Steam Distillation of Toluene – Benzil Mixture</td>
<td>September 19-23</td>
</tr>
<tr>
<td>September 19-23</td>
<td>3. Extraction I: Partition Coefficient and Separations of Acid/Neutral, and Base/Neutral</td>
<td>October 3-7: After all Extraction I procedures are completed!</td>
</tr>
<tr>
<td>September 26-30</td>
<td>3. Extraction I (Continued): Separation of a Strong/Weak Acid</td>
<td></td>
</tr>
<tr>
<td>October 3-7</td>
<td>4. Extraction II: Separation and Purification of the Components of an Analgesic Tablet</td>
<td>October 10-14</td>
</tr>
<tr>
<td>October 10-14</td>
<td>5. Solid-Liquid Extraction: Trzymristin from Nutmeg</td>
<td>October 17-21</td>
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<tr>
<td>October 17-21</td>
<td>6. Grignard Reaction</td>
<td>October 24-28</td>
</tr>
<tr>
<td>October 24-28</td>
<td>7. Substitution Reactions S(_N)2: Synthesis of \textit{trans}-1,2-dibenzoyl-cyclopropane</td>
<td>October 31-November 4</td>
</tr>
<tr>
<td>October 31-November 4</td>
<td>8. Substitution Reactions S(_N)1: triphenylmethanol</td>
<td>November 7-11</td>
</tr>
<tr>
<td>November 7-11</td>
<td>9. Elimination Reaction E1: Cyclohexene from cyclohexanol (fractional distillation)</td>
<td>Experimental Write-Up November 14-18</td>
</tr>
<tr>
<td>November 14-18</td>
<td>10. Elimination Reaction E2: Cyclohexene from bromocyclohexane</td>
<td>November 28-December 2</td>
</tr>
<tr>
<td>November 21-25</td>
<td><strong>No LABS!</strong> (Thanksgiving Holiday)</td>
<td></td>
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<tr>
<td>November 28-December 2</td>
<td><strong>MANDATORY</strong> Checkout</td>
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<tr>
<td><strong>December 2 (Friday!)</strong></td>
<td><strong>LAB EXAM</strong> (6:00pm-7:00pm in Royall Hall 111)</td>
<td></td>
</tr>
</tbody>
</table>
CHEM 321L Laboratory Safety Regulations: Initial the items and sign the bottom.

Semester _Fall 2016_  Section _VO_____  Room # _______________
TA Name ______________________   Station # _________________

1. I will prepare for lab by studying the experiment before class (including watching the prelab and instructional 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 unless the instructor gives specific approval to remove them.

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 any allergies or other health conditions (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 (http://www.umkc.edu/catalog/default/Page56715.html) and http://cas.umkc.edu/cpr/#honesty). 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: __________________