Inorganic Synthesis Lab - CHEM 4003
Spring - 2020

Instructor
Dr. Jay Gilbert
Office
BE 200
Office hours
Wednesday: 12:30 pm to 2:00 pm
Friday: 10:00 am to 11:30 am
Phone
215-204-0471
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Teaching Assistants
Mr. Saibal Singh
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001
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Lecture Schedule:

<table>
<thead>
<tr>
<th>Day</th>
<th>Section</th>
<th>Location</th>
<th>Time</th>
<th>Instructor</th>
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<tr>
<td>Monday</td>
<td>001</td>
<td>BE 120</td>
<td>1:00 pm to 1:50 pm</td>
<td>Dr. Jay Gilbert</td>
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Lab Schedule:

<table>
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<tr>
<th>Section</th>
<th>CRN</th>
<th>Location</th>
<th>Time</th>
<th>Lab TA</th>
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<tr>
<td>Sec – 001 (MF)</td>
<td>40706</td>
<td>BE 211</td>
<td>M – 2:00 pm to 4:50 pm, F – 12:00 pm to 2:50 pm</td>
<td>Mr. Saibal Singh</td>
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Chemistry-4003:

One hour lecture and six hours laboratory per week.

**Prerequisite:** Before attempting this course you need to have completed a course in inorganic chemistry (CHEM 4002 or CHEM 3001 or the equivalent).

**Disability disclosure:** This course involves the use of many toxic materials, which need to be handled with specific safety procedures. If you have a physical or emotional disability, which might limit you in appropriately following such procedures, you should not take this class.

**Text and safety equipment:**

*There is no textbook for this lab, for all labs handouts will be posted on the class canvas site.*

You will also need safety glasses or goggles and a laboratory coat or apron. You will not be permitted to enter the laboratory without these protective items. Safety practices which were required in your previous laboratory courses (general, organic, and analytical) will continue to be required in this course.
Goals of the course:

This course is designed to familiarize the student with the techniques of chemical synthesis and characterization which are specific to the inorganic compounds. Although theory will be included in the discussions, this is primarily a course in technique and physical methods. We will do the twelve experiments given in the following list (but not necessarily in the order given below):

1. Synthesis of copper(II) acetate and study of its magnetism (handout). Cu-Mag
2. Metal Complexes of DMSO. Experiment # 20 (Page-218). M-DMSO.
3. Ion-Exchange Separation of Chromium Complexes (handout). IonEx.
8. Independent Projects.

Grading:
There will be a midterm exam worth 100 points (Monday, March 9th, regular class time) and the final exam worth 200 points (during last week of classes). Your laboratory reports (each worth 100 points) will count for 65% of your total score. You should maintain a laboratory notebook in a format convenient for you to follow. The laboratory reports will be required to follow a prescribed format, indicated below.

Laboratory Reports:
The lab reports should be easily read, which means that they should be typed, computer-printed, and not hand printed. Computers with word processing software are available in BE 220. All lab reports are due a week from the day an experiment is completed. Both the printed copies and the electronic copies of the lab reports should be submitted. All lab grades will be entered on the class canvas site. If an electronic copy for a specific lab reports were not submitted then no credits will be given for that lab. For the lab reports submitted past the due date, five points will be deducted for each working day.

If you keep a reasonable lab notebook, most of the information below will already be in your notebook. You are expected to attend laboratory and carry out the experiments yourself. Laboratory reports must reflect work, which you (and not others) actually did. Even if you work as a team, you must submit your own lab report and should not be copy of the lab partner.
Format of Laboratory Reports:

In order to provide uniformity for lab reports, the following format should be followed.

1. **Goal:** State briefly the goal or purpose of the synthesis. (What does it demonstrate, what special technique is involved, or why is it appropriate as an example for study?)

2. **Introduction:** In about a page discuss the chemistry behind the each experiment. Introduction should not contain experimental details.

3. **Reagents** In table form, list the chemical used, the amount needed for the reaction, and the actual masses (or volumes) used. List briefly important properties of each reagent used (as noted in the text).

4. **Experimental Section:** If the experiment requires apparatus more complicated than simple pouring and stirring in beakers and Erlenmeyer flasks, give a sketch of the apparatus. Give the procedure followed in the experiment. Note the purpose of each operation or added reagent (this will be a big help in preparing you for the midterm and final exams). Note whenever an operation or added reagent results in an apparent change in the reaction materials.

5. **Results and Discussion:** Give the yield obtained and using the theoretical yield, calculate the percent yield of product. Show all work (If you are typing or computer-printing your work, this section can be hand-printed.) All the experimental results must be given neatly in a table and the significance of the results should be discussed. Give the yield obtained and using the theoretical yield, calculate the percent yield of product. Show all work, if you are typing and printing your work, this section can be hand written.

6. **Conclusions:** Briefly highlight what you have accomplished in each experiment.

7. **References:** Complete list of referred books, journals or other sourced should be listed. Refrain from referring the Wikipedia site; instead refer journal articles or any textbooks on inorganic chemistry.

INCOMPLETES / WITHDRAWALS:

This course will adhere to the Department's and the University Policy regarding the last date to drop or withdraw from the course. The last date to drop Monday, January 27th. Withdrawals can occur until a later time. For this semester this date will be Wednesday, March 18th. To obtain an "incomplete", the usual incomplete contract must be signed upon completion of 60% of the work. The student's accumulated total to that point should be more than 75% of the possible points. Non-attendance to the lab does not constitute "dropping" the course. Official withdraws can only be done through the Registrar's office.

**Inclement Weather:** The University’s radio broadcast class cancellation numbers are 101 for day classes and 2101 for evening classes (starting after 4 PM). The most accurate and up-to-date information can be obtained directly from the University (215-204-1975; WRTI, 90.1 FM; or http://www.temple.edu). In the event of a cancellation, it should be assumed that any exams or graded work will be due at the next class meeting unless otherwise stated.
Disability Resources and Services: Any student who has a need for accommodation based on the impact of a disability should contact their instructor privately to discuss the specific situation as soon as possible. Contact Disability Resources and Services at 215.204.1280 in 100 Ritter Annex to coordinate reasonable accommodations for students with documented disabilities. For additional information check http://www.temple.edu/disability/ or contact them at drs@temple.edu

Student Rights and Responsibilities: The University has a policy on Student and Faculty Academic Rights and Responsibilities: https://bulletin.temple.edu/undergraduate/academic-policies/code-conduct/ Temple University is a community of scholars in which freedom of inquiry and expression is valued. Each member of the University community is expected to have respect for the rights of others, to conduct one’s self in a manner that is compatible with the University’s mission, and to take responsibility for one’s actions. To fulfill its functions of promoting and disseminating knowledge, the University has authority and responsibility for maintaining order and for taking appropriate action, including, without limitation, exclusion of those who disrupt the educational process. Please refer to the Student Code of Conduct.

Problems: You should first attempt to resolve any problems that you are having with your laboratory or recitation instructor(s). If after speaking with the instructor you have not resolved the issue, you should speak with the course coordinator before speaking to your lecturer. As coordinator he will attempt to mediate, but the ultimate decision is often determined by department policy. Do not expect your instructor to make new policy. However, if you are having problems with the professional conduct of your instructor you should contact the course coordinator immediately.

Make-ups: There will be no make-ups of missed labs, tests, or final examinations.

Academic integrity: All students are expected to adhere to the highest levels of academic integrity. Any students found cheating (i.e. copying answers to exam, quiz, or homework; submitting experimental data that they did not collect; presenting graphs and calculations; or otherwise taking credit for work that they did not perform) will receive a failing grade in the course. They will also be reported to the Dean's office in the College of Science and Technology.

Miscellaneous: 1). Cell phones are to be turned off during lecture, labs and exams. 2). No electronic devices other than a basic "four function" calculator may be used during an exam. 3) During testing situations, you have completed the test when you leave the room. Visit the restroom facilities before sitting for your exams. 4) Photo identification may be required at any test. Be prepared.