Syllabus

CHEM 410: Inorganic Lab

Time and Place:
Section 001: Thursdays 1:00 pm – 5:00 pm. Neckers 408.
Section 002: Tuesdays 2:00 pm – 6:00 pm. Neckers 408.

Instructors:

Professor Sean Moran
Office: Neckers 316
Email: smoran@chem.siu.edu

Tayler Hill
Office: Neckers 312
Email: taylerhill@siu.edu

Overview:
Welcome to CHEM 410, Inorganic Lab! This course has been altered significantly from previous years, with the goal of teaching you the fundamentals of modern inorganic synthesis and characterization while also providing you with a structured research experience. A major feature of this course is the organization of laboratory exercises into multi-week units, each of which involves the synthesis and in-depth characterization of one or more inorganic compounds. The exercises have been planned to roughly correspond to order of topics presented in CHEM 411, Intermediate Inorganic Chemistry. Please note that this course is still a work in progress, and some changes to this syllabus may take place!

Textbook:
There is no textbook for this course. Laboratory exercises will be provided as handouts throughout the semester.

Laboratory Notebooks:
You must use a “carbon copy” laboratory notebook in this course. Notebooks are available at the SIU bookstore.

Pre-lab presentations:
One of the Instructors will present a brief (10-15 minute) pre-lab lecture reviewing the day’s tasks and indicating the location of necessary materials and any related safety concerns.
**Participation:**

Participation in laboratory exercises is required. Students will be assigned lab partners (groups of two, or three where necessary) and will be responsible for delegating tasks to group members during laboratory periods.

**Pre-lab assignments:**

Each student will keep a laboratory notebook. Prior to each laboratory period, each student must outline the day’s tasks in their lab notebook, making note of which lab partner will perform each task. In the interest of fairness, each student must sign their own and their lab partner’s outlines to indicate agreement with the arrangement. Lab partners must share data, and each student is responsible for keeping a complete record of their observations. The TA will grade the student’s pre-lab write-up weekly on a scale of Excellent (100%), Satisfactory (85%), Unsatisfactory (70%), or Not Attempted (0%).

In addition to pre-lab write-ups, a few brief questions may be assigned for completion as part of the pre-lab assignment. These questions should be answered independently by each student. Copies of pre-lab write-ups and answers to questions should be turned in at the beginning of each lab period.

**Summary Reports:**

Summary Reports function as homework in this class, and are due one week after the completion of each lab period. Each Summary Report should recap, in written form, what was performed in the lab. It should also contain any observations and data in table or figure form.

**Unit Reports:**

Unit Reports function as exams in this class, and will be assigned at the completion of each Unit. These reports must be prepared in the style of Inorganic Chemistry (ACS), and may be 5-7 pages long (single-spaced), including tables and figures but excluding references. An electronic template will be provided by the Instructors.

The purpose of each Unit Report is to organize all of the procedures and data from a set of related experiments, and describe what was learned about the molecules studied in a scholarly fashion. A minimum of 15 references to the chemical literature must be included in each Unit Report.

The final Unit Report is due at the end of Finals Week.

**Participation and Technique:**

Each student will be graded on their participation in the lab and their laboratory technique at various times during the semester. The Instructors will evaluate each student on a scale of 0-5, and the average evaluation will be converted to a Participation/Technique grade worth 5% of the total grade.
**Evaluation:**

The following scheme will be used to calculate your percentage grade in CHEM 411.

- **Pre-lab grade:** 15%
- **Summary Reports:** 40%
- **Unit Reports:** 40%
- **Participation/Technique:** 5%

**Grading Scheme:**

Letter grades will be assigned to numerical grades as follows, without exception.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>85-100%</td>
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<tr>
<td>B</td>
<td>75-84%</td>
</tr>
<tr>
<td>C</td>
<td>65-74%</td>
</tr>
<tr>
<td>D</td>
<td>55-64%</td>
</tr>
<tr>
<td>F</td>
<td>Less than 55%</td>
</tr>
</tbody>
</table>

**Safety Policy:**

Strict adherence to safe lab practices is required in CHEM 410. Failure to follow the safety rules will result in dismissal from the lab for the day, and you will be considered “absent” from the affected lab period. All penalties for a missed lab will apply (see below). The rules are as follows:

- Lab coat and safety goggles must be worn AT ALL TIMES.
- Gloves must be worn when indicated.
- No open-toed shoes.
- Full-length pants are required (no shorts, skirts, kilts, capris, leggings, etc.)
- No food or drink is allowed in the lab.
- No horseplay, rough-housing, hijinks, or tomfoolery will be tolerated.

Your TA has the absolute authority to judge your safe lab practices and warn you and/or dismiss you from the lab if necessary.

In addition to these general rules, specific safety precautions will be outlined in your lab handouts and in the pre-lab presentations. You are expected to follow these guidelines as diligently as you would follow the above rules.

**Pre-lab policy:**

Students will not be permitted to perform laboratory exercises without completing the pre-lab exercises. Completion of these exercises will be checked during the pre-lab presentation.
Missed Lab Policy:
No makeup labs are permitted under any circumstances. If a student misses a laboratory session, they may confer with their partners to obtain missed data. However, they will receive a grade of zero (0) for Participation/Technique during that period, as well as a grade of zero (0) for that day’s pre-lab exercises. A Summary Report may still be turned in, albeit with a maximum grade of 75%. If a student is present at the start of the lab but needs to leave for a medical reason, no penalty will be assessed. In case of documented illness, a student must contact Dr. Moran to waive the missed lab penalty.

Office Hours:
Office hours can be arranged by appointment.

Tentative Schedule of Laboratory Exercises:

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Unit</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/20, 1/22</td>
<td>N/A</td>
<td>Course overview, syllabus, and organization</td>
</tr>
<tr>
<td>2</td>
<td>1/27, 1/29</td>
<td>N/A</td>
<td>Practice laboratory: silicone polymers</td>
</tr>
<tr>
<td>3</td>
<td>2/3, 2/5</td>
<td>1</td>
<td>Synthesis and metalation of a meso-tetraphenylporphyrin I</td>
</tr>
<tr>
<td>4</td>
<td>2/10, 2/12</td>
<td>1</td>
<td>Synthesis and metalation of a meso-tetraphenylporphyrin II</td>
</tr>
<tr>
<td>5</td>
<td>2/17, 2/19</td>
<td>1</td>
<td>Physical characterization of metalloporphyrins</td>
</tr>
<tr>
<td>6</td>
<td>2/24, 2/26</td>
<td>1</td>
<td>Physical characterization of metalloporphyrins</td>
</tr>
<tr>
<td>7</td>
<td>3/3, 3/5</td>
<td>1</td>
<td>Axial Ligands/Electronic Structure</td>
</tr>
<tr>
<td>8</td>
<td>3/17, 3/19</td>
<td>1</td>
<td>Bioinorganic chemistry of metalloporphyrins</td>
</tr>
<tr>
<td>9</td>
<td>3/24, 3/26</td>
<td>2</td>
<td>TBA</td>
</tr>
<tr>
<td>10</td>
<td>3/31, 4/2</td>
<td>2</td>
<td>TBA</td>
</tr>
<tr>
<td>11</td>
<td>4/7, 4/9</td>
<td>2</td>
<td>TBA</td>
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<tr>
<td>12</td>
<td>4/14, 4/16</td>
<td>2</td>
<td>TBA</td>
</tr>
<tr>
<td>13</td>
<td>4/21, 4/23</td>
<td>2</td>
<td>TBA</td>
</tr>
<tr>
<td>14</td>
<td>4/28, 4/30</td>
<td>2</td>
<td>TBA</td>
</tr>
<tr>
<td>15</td>
<td>5/5, 5/7</td>
<td>2</td>
<td>Check out and evaluations.</td>
</tr>
<tr>
<td>16</td>
<td>5/15</td>
<td>2</td>
<td>Unit 2 Report due by 5 pm</td>
</tr>
</tbody>
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IMPORTANT DATES *
Semester Class Begins .............................................. 01/20/2015
Last day to add a class (without instructor permission): ........... 01/25/2015
Last day to withdraw completely and receive a 100% refund: ...... 02/01/2015
Last day to drop a course using SalukiNet: ......................... 04/05/2015
Last day to file diploma application (for name to appear in Commencement program): ........................................... 03/13/2015
Final examinations: ................................................... 5/11–5/15/2015
Note: For outreach, internet, and short course drop/add dates, visit Registrar’s Academic webpage http://registrar.siu.edu/

SPRING SEMESTER HOLIDAYS
Martin Luther King, Jr.’s Birthday 01/19/2015
Spring Vacation 03/07—03/15/2015

WITHDRAWAL POLICY ~ Undergraduate only
Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://registrar.siu.edu/pdf/ugradcatalog1314.pdf

INCOMPLETE POLICY ~ Undergraduate only
An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student's grade point average. For more information please visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A,B,C,D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See full policy at http://registrar.siu.edu/pdf/ugradcatalog1314.pdf

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements.
http://disabilityservices.siu.edu/

SAFETY AWARENESS FACTS AND EDUCATION
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, http://saluki-cares.siu.edu/index.html

EMERGENCY PROCEDURES
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the SIU Emergency Response Plan and Building Emergency Response Team (BERT) programs. Please reference the Building Emergency Response Protocols for Syllabus attachments on the following pages. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well an essential preparation for any career. For more information please visit: http://www.inclusiveexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:
Tutoring : http://tutoring.siu.edu/
Math Labs http://tutoring.siu.edu/math_tutoring/index.html

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit http://write.siu.edu/

AFFIRAMITIVE ACTION & EQUAL OPPORTUNITY
Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:

SALUKINET: https://salukinet.siu.edu/cp/home/displaylogin
ADVISEMENT: http://advisement.siu.edu/
SIU ONLINE: http://online.siu.edu/