CHEM 3100: Inorganic Chemistry

INSTRUCTORS

Instructor: Prof. Caroline Saouma
Email: caroline.saouma@utah.edu
Office: HEB 3254

TAs: Yotam Ardon (yotam.ardon@utah.edu)
     Jordan Reelitz (jordan06r@gmail.com)
     Heather Cummins (hmcummins96@gmail.com)
     Edwardo Hurtado (edwardo.hurtado@outlook.com)

LA: Aisha Zuiter (aisha.zuiter@utah.edu)

Admin: TBD

CLASS TIME & LOCATION

Lectures
MWF 11:50 – 12:40 (CSC 205)
T 11:50 - 12:40 (HEB 2004)

Discussion Sections
Section 2: Th 9:40 – 10:30 (CSC 13)
Section 3: Th 10:45 – 11:35 (CSC 108)
Section 5: Th 11:50 – 12:40 (CSC 108)

Final Exam
F Dec 13: 10:30 – 12:30 (CSC 205)

Office Hours
HEB 4001 (above the men’s bathroom), 6+ hours a week, TBD (fill doodle poll first week of class)

CHEM 3100 Study Room
HEB 4001

COURSE PAGES

Canvas: https://utah.instructure.com/courses/576733
- Used to check grades; may be used to upload assignments (TBD 1st week of class)

TOPHAT: https://app.tophat.com/
- JOIN CODE: 471621
- CLASS NAME: CHEM 3100 (F ’19)
- Register with your school email and make sure your name is included in your profile
- Muddiest point and in class clicker system; problems will be available for review 1 h after class

ONENOTE class notebook (linked in canvas then in your university onedrive)
- Login with: uID@umail.utah.edu
- Where all course content is stored
- Where you will print your psets to
Inorganic chemistry is the chemistry of the periodic table, and this course will focus heavily on transition metal chemistry. We will begin by learning about symmetry and group theory and apply what we have learned to understand how molecules bond to one another. We will then apply this to coordination chemistry, and we will learn about structure and spectroscopy. The final third of the course is dedicated to inorganic reaction mechanisms, with an emphasis on organometallic. Throughout the course examples will be introduced that relate the concepts learned to other areas of chemistry/your daily lives, as well as inorganic chemistry in medicine.

By the end of this course, you will be able to:

- Rationalize periodic trends based on orbital size and symmetries
- Understand how atoms bond together, using molecular orbital theory
- Be able to identify symmetry elements
- Be able to assign point groups
- Have an understanding of what character tables are, and how they apply to chemistry
- Apply character tables to spectroscopy and bonding
- Understand how frontier orbitals dictate chemical reactivity
- Realize that coordination complexes are simply hard-soft Lewis interactions
- Understand how metals bond to ligands, using crystal field, molecular orbital theory, and atomic overlap theory
- Understand the selection rules to UV-vis spectra, and assign transitions
- Appreciate that vampires are real
- Characterize coordination complexes based on their NMR spectra
- Know what Jahn-Teller distortion is, why it arises, and how to know if a molecule undergoes this distortion
- Be able to count electrons
- Understand when ligand substitution occurs, and apply this to the synthesis of Pt-based therapeutics
- Understand electron-transfer in metal complexes and apply Marcus theory
- Be familiar with the elementary types that make up organometallic catalytic cycles
- Appreciate catalysis, and how transition-metals play a role in your daily lives
- See how inorganic chemistry ties into medicine as well as biochemistry
- Understand several organometallic mechanisms
- Be prepared to take graduate classes in inorganic chemistry and spectroscopy

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REQUIRED MATERIALS

SOFTWARE AND APPS:
1. **TOP HAT** ($30 for four months)

2. **OneNote**: (accessible with your unetID: [http://o365cloud.utah.edu/](http://o365cloud.utah.edu/))
   - Have this installed on all your computers, tablets, and phones so you can access course material at any time
   - You can use the online version, but if you use the desktop version all of the material is available offline once it has synced

3. **Microsoft Teams**: for remote office hours (accessible with your unetID: [http://o365cloud.utah.edu/](http://o365cloud.utah.edu/))

4. **Camscanner app**: [https://www.camscanner.com/](https://www.camscanner.com/)
   - For scanning assignments to upload
   - Other apps that are made to scan documents are okay, but your cell phone camera is not

5. **WebMO**: [https://www.webmo.net/](https://www.webmo.net/)

TEXTBOOK:
None required. The texts below are on reserve for those that are interested. (abbrev.) are how I will refer to the texts in the lecture notes.

1. **Inorganic Chemistry** (WOR) by Weller, Overton, and Rourke (7th edition)
   - Amazon ~ $70 new

2. **The Organometallic Chemistry of the Transition Metals** (Crabtree) by Robert Crabtree
   - Free access from the Marriot library here (need to login and be on-campus or have off-campus access)

3. **Inorganic Chemistry** (MFT) by Miessler, Fischer, and Tarr (5th edition)
   - Text I learned from (2nd ed!) and that I used during Fall 2017
   - Great problems, and the solution manual is accessible here
   - Not much has changed throughout the editions (other than the problems), so if you are interested in purchasing, I recommend finding a cheap copy of ed. 2, 3, or 4
     - Amazon ~ $165 new (5th ed)
     - Amazon ~ $26 (4th ed)

4. **Symmetry and Spectroscopy** (HB) by Harris and Bertolucci
   - Great text, esp. if you are interested in spectroscopy, or are mathematically inclined
   - May be a good resource for your p-chem classes too
   - I used it in my undergrad inorganic, quantum, and lab classes and loved it - *very* readable
     - Amazon ~$14

5. **Molecular Symmetry and Group Theory** by Alan Vincent (2nd edition)
   - Highly "highly" recommend if you are struggling with symmetry (second emphasis comes from your LA)
     - Amazon ~ $17

MISC:
1. **Method to interact with the notes and class material**
   - Tablet with stylus recommended, if possible OR
   - Printouts of all the course material will also work
2. **Notebook to take notes in class**
   - Tablet with stylus can be used alternatively

3. **Colored pens/pencils**
   - Will be useful during symmetry/spectroscopy section.
   - I recommend the erasable frixion, so you can correct your mistakes

4. **Model kit (recommended, not necessary)**

5. **Calculator (for exams)**

6. **Ruler (for exams and psets)**

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### Communication with Prof Saouma, TAs and LA

#### Email:
- To ensure that we get back to you promptly, please email us directly with [CHEM 3100] at the start of the subject line.
  - Emails from canvas already has this header, but sometimes there is a delay when the message is sent through canvas.
  - Emails that do not have this header may be ignored.
- We will respond to yes/no questions, to make appointments, or questions that are one-sentence responses.
- For questions on course material/problem sets, please:
  - come to office hours
  - briefly explain the question and attach a .pdf or other document that clearly shows where you are stuck so that we can readily get back to you
- Our email answering time is 9 AM to 9 PM M-S. I will get back to you within 24 h. I *may* respond outside of these hours, but there is no guarantee.
- Do not email us questions that can be answered by reading the syllabus or announcements, these will be ignored.

#### Office hours:
- Come to office hours prepared with specific questions.
  - Office hours are to address questions you have, they are not a means to get a private lecture; if you come expecting the latter you will be disappointed.
- I anticipate several students coming, so be ready to share your knowledge and questions with others.
  - If you need to have a private discussion, please schedule that with an LA, TA, or myself.

#### Communicating with you:
- Make sure to check your email daily, as we will communicate with you mainly through email.
  - Check over the weekend in case there is an important message about Monday’s class.
- All emails will be copied to OneNote.

#### Communicating amongst each other:
- I encourage you to work together, I believe in OneNote there is a chap
- Microsoft teams is great for creating groups and sharing files
COURSE STRUCTURE AND GRADING EXPLANATION

How Grades are Assigned:
- In class exams: 48% (4 x 12%)
- Final exam: 20%
- TOPHAT/Participation: 7%
- Discussion sections: 10%
- Problem sets: 15%
- Extra credit TOPHAT: 2%

I assign grades based on understanding of the course material. While your final grade will reflect your rank in the class, you are not competing amongst one another. Maximum cutoffs will be as follows:

**A range:** 85% (solid understanding of material and can extrapolate concepts)
**B range:** 75% (decent understanding of material, extrapolating concepts challenging)
**C range:** 65% (okay understanding of the material, cannot extrapolate concepts)
**D range:** 60% (mediocre understanding of the material)

These cutoffs will not be raised but may be lowered if an exam was inadvertently made too long. After each exam, updated cut-offs will be provided in class so that you can calculate your score.

Note, your “grade” in canvas is not scaled and hence is not accurate, you need to do the math yourself to calculate your score (do not ask a TA or myself to do this for you).

Below is a breakdown of the grade distributions from last year, and how the percentiles compare to the previous year. Let’s try to get even more As and Bs!

<table>
<thead>
<tr>
<th>Grade</th>
<th>No Students</th>
<th>Percentile</th>
<th>Percentile (2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>16</td>
<td>75%</td>
<td>80%</td>
</tr>
<tr>
<td>A-</td>
<td>9</td>
<td>61%</td>
<td>66%</td>
</tr>
<tr>
<td>B+</td>
<td>5</td>
<td>53%</td>
<td>50%</td>
</tr>
<tr>
<td>B</td>
<td>11</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>B-</td>
<td>3</td>
<td>31%</td>
<td>25%</td>
</tr>
<tr>
<td>C+</td>
<td>3</td>
<td>27%</td>
<td>18%</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>23%</td>
<td>17%</td>
</tr>
<tr>
<td>C-</td>
<td>2</td>
<td>20%</td>
<td>12%</td>
</tr>
<tr>
<td>D</td>
<td>5</td>
<td>13%</td>
<td>5%</td>
</tr>
<tr>
<td>F</td>
<td>8</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

In-Class Exams:
- There will be four in-class exams that are to be taken over two days:
  - Day 1: Group exam (25% of total exam score)
  - Day 2: Individual exam (75% of total exam score; if ind. score beats the group then it counts 100%)

While this may sound extreme, I am opting to have you take two exams, as this has been shown to be effective, and I’ve only received positive feedback on this structure. This will require you to study twice, and by working in groups, communicating ideas/teaching one another, you are inadvertently increasing your understanding of the material while you teach.
• You will choose your own groups of 3, but you can never have the same group.
• If your individual exam score beats your group exam score, then your individual exam score counts 100%.
• If you fail to show up for the group exam, it automatically will count 25% of your exam score. So your maximum score will be 75%.
• The group exams cover two fewer lectures than the individual exam, allowing students to have more time to study the material covered during exam week (and guarantees that it will be on the individual exam).
• I will start exams a little early and allow students to stay a little late (exact times TBD once I coordinate with other instructors using the lecture hall).
• All exams are closed-book. Students must have all laptops, tablets, phones, watches, etc. put away in their bags. Failure to do so may result in an automatic zero for the exam. Students must keep their eyes on their own paper. Failure to do so may result in an automatic zero for the exam.
• Exams are “long” and typically will have 120 points, but are graded out of 100. This is so that if you blank, you can still do well on the exam.

If students have a legitimate reason to miss an individual exam that has been cleared with Prof. Saouma on or before the Monday of the exam date, then the final exam score will count for the exam score. If they have a legitimate excuse to miss a group exam, then their individual exam will count 100%. Note, I will only clear legitimate conflicts and may request documentation. When you make the request, you must explain why you cannot make the exam. Do not assume that you will get to miss an exam, I reserve the right to deny any request. If you are more comfortable talking to a TA, they can relay the “need to know” information to me.

Exam pickup policy:
• Group exams can be scanned in our admin's office (TBD) after showing them your student ID. Exams cannot leave the office.
• Individual exams must be picked up the week following the exam (email me if you are out of town and cannot do so).
  o Pickup at the end of the following lecture, or from the admin
  o You must show your ID.
  o Failure to pick up your exam will result in a 5% drop in your exam score. This is to encourage you to learn from your mistakes.

Videos that cover the exams, as well as keys, will be posted when exams are ready for pickup.

Final Exam:
The final exam is closed-book, individual, and comprehensive. I will again start the exam early/allow you to stay late, with exact times announced the final week of class.

Flipped Classroom and TOP HAT:
This is a five-credit course, with four lectures a week. That is a lot of material to absorb in a week. Moreover, the material being covered is different than that you may have seen in other classes, so even though in the end you may not think it is hard, while you are learning, you may.

This year, the course will be flipped, the reasons being:
1. To do well in this course, you need to do pset problems every day, as the lectures build. Some of you literally do not have time to do this. By flipping the course, this will force you to do so. Videos will be made available a week in advance so you can watch them whenever.
Two years ago I made videos on some of the more challenging lectures, and the students really enjoyed them. The majority of students watched at least some, and many credit the videos for why they did well in the course. Some students watched the videos in whole (at faster or slower speeds), and others looked at just key sections. Due to their success, this year rather than repeating the videos in lecture, I will ask you to watch the videos on your own and come to lecture ready to tackle problems. Many students last year came to office hours looking for encouragement on starting problems, and just needed a little bit of support/feedback before everything “clicked”.

- Because the videos are portable, you can watch/listen them while waiting or on the bus, between classes, while eating, etc.
  - The powerpoints can be downloaded and saved to your device, so you do not need wifi.
  - The videos can be watched at different speeds

- Prior to coming to lecture, the students need to have watched the lecture video. This should take you 45 – 60 minutes.
  - Some videos will have “supplements” where I go more in depth- this allows students who are struggling to understand the material, and those who understand the content to easily skip the material. This is indicated by shading in the background.
  - Partially filled lecture notes that serve as a guide to the lectures will be provided.
- You will have the opportunity to write out a “muddiest point” on the lecture which will help the TAs, LA, and myself guide the in class discussion.

Class will start with ~ 5 minutes of clicker questions on the lecture and answering any questions on the material. We may start with a demo, activity, or “mini” lecture.

Following this, we will work on problems in groups. Please limit groups to six or fewer, and space yourselves out so that the TAs, LA and I can come help you. These problems are straight from your problem set. You are highly encouraged to finish the problems right after class. The exact structure will vary by day, but we will either: set-up the problems and allow you to ask questions, give you free time to work through the problems, or work through problems together (or a combination of methods).

I want this to be interactive with participation. I encourage you to ask/answer questions. I will have a microphone ball and tablet so that students can interact with the board directly. Do not be scared to answer incorrectly or ask a “dumb” question- I guarantee at least one other student in the room will breath a sigh of relief that you spoke up and will benefit. If you knew the answers to everything, you would not be in this class. On the same note, be respectful of your peers.

You are graded on participation/TOPHAT. Clicker questions are 25% participation, 75% correct. Other activities in class, such as when we ask that you take a picture of your work, are simply graded on completion. I expect that you will miss a few classes, so everyone will get an 8% bump in their participation/TOPHAT graded (up to 100%, no extra credit here). If you anticipate missing extended amounts of class or are having major technology issues, please let an LA, TA, or myself know so we can accommodate appropriately.

**Discussion Sections:**
- You must attend the discussion section you are assigned to. If an emergency prevents you to do so one day, email one of us requesting a change with a reason; this may or may not be granted.

- Discussion sections will be dedicated to a “problem of the week” like worksheet. Discussions that fall the week of exams will follow a similar format, but emphasis will be put on the two last lectures (not covered in the group exam).

- A key will be provided after the last discussion section.
• You are graded on: 50% attendance, 50% participation. Participation means you are asking questions, helping your peers, etc.

Problem Sets:
• Weekly problem sets will be assigned and submitted through onenote
  o If students complete their work in Onenote on the assignment page, nothing else has to be done to submit.
  o Otherwise students must scan their work using CamScanner and upload a single .pdf to canvas. It is the student’s responsibility to ensure that their work is legible.
  o Answers should be clearly marked. It is at the TAs discretion to give automatic zeros for illegible work, which can include poor scanning.

• Students are encouraged to work on problems pertinent to each lecture immediately, to ensure ample time to get help. Do not procrastinate and wait until the weekend!

• Problem sets are due at 9 PM the day they are due, except exam weeks (11:59 PM).

• No late problem sets will be accepted, as the key will immediately be posted.

• Each problem set has two components:
  1. Class problems, which are graded for completion (25%)
  2. Problem of the week (POW), which is graded for correctness (75%).

• It is the responsibility of the student to check their answers with those that are posted.

• Students are encouraged to work individually, then to consult with their peers to tackle more challenging problems together. When I was a student, that is what I did, and during the “group” session I ended up re-writing my entire pset so that it is legible. The act of doing it again really helped ensure I understood what I was doing. Take advantage of the new study space in CSC and the CHEM 3100 study room!

• There will be at least two extra credit opportunities that will be worth points towards psets (you can have a score > 100%). These opportunities are to enhance your learning and appreciation of inorganic chemistry, so you are encouraged to complete them.

Extra Credit:
• Before each class lecture, there will be some questions on TOPHAT that you can complete. These are graded 100% on if correct, and can contribute a maximum 2% to your grade.

• Please do not request extra credit that is not solicited.
UNIVERSITY POLICIES

1. **The Americans with Disabilities Act.** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

   *If you have accommodations or are in the process of being tested, email Prof Saouma the first week of class to coordinate. This is important as may require reserving rooms for exams.*

2. **University Safety Statement.** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

3. **Addressing Sexual Misconduct/Discrimination.** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) 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, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

   *If you report sexual misconduct or discrimination to me or a TA/LA, by law we have to report it to the Office of Equal Opportunity. This is not as scary as it sounds, and YOU are in control of if there is a follow up investigation. YOU are protected from retaliation. And YOU ARE NOT ALONE.*

4. **Wellness Statement.** Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at 801-581-7776.

5. **Undocumented Student Support Statement.** Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit dream.utah.edu.

6. **Student Code.** By submitting an assignment, you are representing that it is your own work and that you have followed the rules associated with the assignment or exam. Incidents of academic misconduct (including cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating on an assignment) will be dealt with severely, in accordance with the Student Code (http://www.regulations.utah.edu/academics/6-400.html). A single instance of academic misconduct may result in a failing grade for the course. Multiple instances of academic misconduct may result in probation, suspension or dismissal from a program, suspension or dismissal from the University, or revocation of a degree or certificate.
CAMPUS RESOURCES

Office of Equal Opportunity, Affirmative Action, and Title IX
- Contact: https://oeo.utah.edu/ or 801.581.8365
- Can answer questions about hypotheticals anonymously and can provide resources
- If you report, YOU are in control, it is not as scary as it sounds
- YOU are protected from retaliation

University Counseling Center
- Contact: https://counselingcenter.utah.edu/ or 801.581.6826
- Great webpage that provides ample information on their services, why you may want to seek their help, and mindfulness
  - My favorite mindfulness app: Headspace, $10 a year for students
- There is NO stigma associated with seeking mental health help
- You are eligible for counselling services as a student

Office of Equity and Diversity
- Contact: https://diversity.utah.edu
- Best “succinct” list of student resources I have yet to find for students at the U, which encompasses resource centers, organizations, emotional resources, campus services, health & wellness, learning communities, and learning services

Office of the Dean of Students
- Contact: https://deanofstudents.utah.edu/
- They are there to support and help YOU
- Behavior intervention team (BIT): If you are concerned about the behavior of a fellow student

Student Success Advocates
- Contact: https://ssa.utah.edu/
- They are there for YOU! They will help you identify your goals and help you overcome personal and academic challenges. See their FAQ

Learning Success Center
- Contact: https://learningcenter.utah.edu/
- Information on learning strategies, how to enhance your study skills/address things such as test anxiety
- Online assessments for things such as your learning style, coping with stress, motivation, etc.
COURSE POLICIES

1. **Attendance & Participation**: Attendance required as part of your grade will depend on your participation. If circumstances in life arise such that you cannot complete assignments, email or come by my office to discuss an appropriate and fair course of action to complete the course work.

2. **Food & Drink**: You are encouraged to eat/drink during class (especially those of you heading to advanced lab afterwards), but please do so discreetly.

3. **Requesting Regrades**: If you believe you missed points on a pset, email the TAs and cc me explaining what happened. If you request an exam re-grade, you must fill out the re-grade form that is in OneNote (under Exams), following the guidelines given there.

4. **Exam overlap**: If you have 3 or more exams on the day of the individual exam, I will allow you to take the exam early or late. If you have an exam immediately before or after the individual exam, I will let you take the exam one our late or early, so you have a mental break. Please email Prof. Saouma the first week of class if this applies to you.

5. **Changes to the syllabus**: I reserve the right to make changes to the syllabus as I see necessary. These changes are to benefit the student.
TIPS TO EXCEL IN CHEM 3100

- Do your problem sets! Class problems and POW.
- Watch the lectures and interact with the notes. It is your responsibility to come to class ready to tackle problems and to keep up the pace.
- Spend time after every lecture (in class) reviewing what you learned before moving on to the next lecture.
- Finish the pertinent problems each day.
- Come to office hours and email us with questions- we are here to help!
- Work in groups. Learn by teaching others and having them teach you.
- Recopy your problem sets before turning them in (esp. if you did them as a group). I found that when I recopied the problem sets, my understanding of the material solidified.
- Take advantage of extra resources- videos, apps, the book, extra office hours, etc.
- Attend lecture and discussion
- Put in the effort (5 credits = 15 - 20 total hours per week). If you cannot commit, better to drop now and take the course when you can.
- Be efficient with your time.
  - If you have 20 minutes after class, get together with classmates in the lobby and tackle a problem together.
  - If you are waiting for the bus, re-read your lecture notes/watch videos.
  - When working on the problem sets, set alarms. If after 30 minutes you’ve made ZERO progress, then that is your queue to do something differently- take a step back to figure out why you don’t understand the problem. Then read the book, notes, etc., and work through easier problems (in the lecture notes or book reading).
- Take advantage of extra credit, even if you don’t need it. It can only help you learn and understand. And know that there is almost always extra credit affiliated with the POW, whether explicitly stated or at the TAs discretion (for really clear, though-out responses).
- Have a positive attitude.
- Do not panic (esp. on exams). Just remember whatever you are feeling, everyone else in the room is feeling the exact same way.

IMPROVING CHEM 3100

I am part of a study that aims to improve how inorganic chemistry is taught to undergraduates. This affects the course in the following way:

1. If you agree to participate, you will need to sign a waiver saying so.
2. Four lectures will be videotaped. I will let you know when these are and if you wish to be completely off camera, I will let you know where to sit. I am the one being video-taped, not you.
3. You will have to fill out three 5-minute surveys.
4. You will have to complete an in-class activity (similar to what we do anyway) and this lecture will be recorded.

While your names are associated with all the material you turn in, this is only so that they can match responses to all the components. Once this has been done, all identifiers will be removed.

Details on submitting waivers/surveys will be announced in class, and more information on this study can be found on OneNote.
COURSE SCHEDULE

Note the schedule provided is tentative, and I reserve the right to make changes to the content of the lectures. Exams are firm and will not change. If pset deadlines are modified you will have ample notice, and will only be done so after polling the class.

<table>
<thead>
<tr>
<th>No.</th>
<th>Date</th>
<th>Topic</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M Aug 19</td>
<td><strong>Introduction</strong>: course structure and why study inorganic chemistry</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>T Aug 20</td>
<td><strong>Atomic structure I</strong>: orbitals</td>
<td><strong>Pset 0</strong></td>
</tr>
<tr>
<td>3</td>
<td>W Aug 21</td>
<td><strong>Atomic structure II</strong>: shielding and periodic trends</td>
<td></td>
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<tr>
<td>D1</td>
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**CHEM 3100 (fall 2019) syllabus: 14**
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