Chem_OX 150 Fall 2020

Structure and Properties

Instructor: Dr. Simba Nkomo
Office: OSB 204
Email: simbarashe.nkomo@emory.edu

Office Hours: Monday and Wednesday 2:00 –3:30 pm, and by appointment
For Group Questions: Monday 3:30–4:00 pm

Appointment Bookings: http://oxford.emory.edu/DrNkomo/

Class Schedule: Section 3: Monday and Wednesday 9:40 am –10:55 am

Zoom link: https://emory.zoom.us/j/93369045643

Method of Instruction: Synchronous sessions via zoom. Sessions will be recorded and posted on Canvas.

Emory University legal statement: Lectures and other classroom presentations presented through video conferencing and other materials posted on Canvas are for the sole purpose of educating the students enrolled in the course. The release of such information (including but not limited to directly sharing, screen capturing, or recording content) is strictly prohibited, unless the instructor states otherwise. Doing so without the permission of the instructor will be considered an Honor Code violation and may also be a violation of other state and federal laws, such as the Copyright Act. Students may not record the class without the instructor’s permission.

Oxford College and Liberal Arts. Oxford College is dedicated to a liberal arts education, and science, including chemistry, is an integral part of the liberal arts.

Supplementary Instructor (SI): Anna Yang (anna.yang@emory.edu)

The schedule for SI meetings will be provided via Canvas.

Learning goals

The primary goals of this class are

• Utilize critical thought and reasoning to understand chemical behavior at the microscopic and macroscopic levels.
• Develop solutions to problems which you have not encountered before.
• Apply physical chemistry principles to address current challenges in our everyday lives.
Course Materials

Required

- ALEKS Registration: Follow the ALEKS link on Canvas or use the course registration code, which is available on Canvas, on ALEKS.com. Use your Emory email.
- Scientific calculator: TI-30Xa or TI-30X II preferred (others subject to instructor approval)
- Molecular Visions or MolyMod molecular model kit
- Internet connection, computer with webcam and microphone

Recommended

- Solutions manual (a copy is available on reserve in the library)

Course Grade Weightings

Exams Schedule

<table>
<thead>
<tr>
<th>Exam</th>
<th>Tentative Date</th>
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<tbody>
<tr>
<td>I</td>
<td>Sept 23</td>
</tr>
<tr>
<td>II</td>
<td>Nov 4</td>
</tr>
<tr>
<td>Final</td>
<td>Dec 8</td>
</tr>
</tbody>
</table>
Exams may be moved forwards or backwards as necessary; this will be announced in class and on the class Canvas site. Let me know ahead of time if there is any conflict.

**The Final Exam will be taken as scheduled.**

Any excuse for missing an exam or conflicts such as religious holidays or school-related trips should be presented before the scheduled exam by email. Emory’s official list of religious holidays may be found at [http://www.religiouslife.emory.edu/faith_traditions/holidays.html](http://www.religiouslife.emory.edu/faith_traditions/holidays.html). If possible, you will take the exam at an earlier date.

For other acceptable excuses such as illness or family emergency, the final exam will replace the missed exam. Please let me know as soon as you are able.

**Grading scale.**

Grades are normally assigned as follows:

<table>
<thead>
<tr>
<th>Grade Range</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>93.0 and up</td>
<td>A</td>
</tr>
<tr>
<td>90.0 – 92.9</td>
<td>A-</td>
</tr>
<tr>
<td>87.0 – 89.9</td>
<td>B+</td>
</tr>
<tr>
<td>83.0 – 86.9</td>
<td>B</td>
</tr>
<tr>
<td>80.0 – 82.9</td>
<td>B-</td>
</tr>
<tr>
<td>67.0 – 69.9</td>
<td>D+</td>
</tr>
<tr>
<td>60.0 – 66.9</td>
<td>D</td>
</tr>
</tbody>
</table>
| 60.0 and below | F |}

Grades are assigned based on your performance in the course and are not open for discussion after being assigned. If your final grade is at the border of 2 grades, consideration will be given to items such as improvement over the semester, and class participation.

**Grading errors:**

If there are any errors or you have questions, submit a request **in writing** for a re-grade in writing no later than 3 days after the exam was returned. Please note that, if you request a regrade, I will check the whole assignment or exam paper. You may lose or gain points in the process.

Quiz and Exam keys will be posted on Canvas after the exam is returned in class.
Assignment Details

Quizzes, Pre-Lecture Assignments, and Participation

Quizzes will be administered weekly as a form of formative assessment and are worth 20% of the final grade. Details of will be posted on Canvas. The nature of questions will vary from conceptual to application-type questions. You are expected to work independently. Always bring your scientific calculator to class. You will drop your two lowest quiz grades. No make-up quiz will be given.

Pre-Lecture Assignments. These will be short assignments to help you prepare for class. The assignments include, but not limited to, watching videos and answering a questions. You are always expected to complete your reading assignments.

Participation includes contributing to class discussion by posting on the discussion board, responding to reflection prompts, and completing surveys. Participation contributes 6% to your final grade.

ALEKS

There will be assignments on ALEKS that you will need to complete by the due date. ALEKS problems will be graded and contribute to your final grade. ALEKS will give you additional practice and tutoring on content you need to master as you also prepare for your class exams. Please read the ALEKS registration document on Canvas. Be sure to look at the ALEKS calendar because credit will only be given to work completed by the due date.

Connect Assignments

Connect assignments are summative assessments for each module. Connect assignments are only accessible through the ebook code. If for some reason your answer is graded as wrong and you believe it is correct, please take a screenshot and email me the problem.

Practice Problem Sets

Practice problems sets will be posted at the end of the chapter. The problem sets are designed to build your skills and simultaneously provide me with the opportunity to assess areas that need re-emphasis to ensure that you understand the essential material. You are allowed and encouraged to come and check your answer with me. You are expected to read the literature in the required textbook, and complete all assigned assessment exercises prior to attending class in order to actively and meaningfully participate during each lecture.
**Policies**

**Attendance**
This semester due to the pandemic, some students might be sick or will need to go into isolation or quarantine. If you are sick, understand that I will be flexible about attendance. Please make sure to email me so that we can discuss your individual circumstances. For students in quarantine who are well, we have provided ways that you can keep up with your schoolwork, whether our class is delivered online or in person. Please also contact me via email if you are in quarantine.

**Accommodations**

If you have a documented disability and have anticipated barriers related to the format or requirements of this course, or presume having a disability (e.g. mental health, attention, learning, vision, hearing, physical or systemic), and are in need of accommodations for this semester, we encourage you to contact the Department of Accessibility Services (DAS) to learn more about the registration process and steps for requesting accommodations at oas_oxford@emory.edu.

If you are a student that is currently registered with DAS and have not requested or received a copy of your accommodation notification letter, please notify DAS immediately.

Students who have accommodations in place are encouraged to coordinate with their me during the first week of the semester, to communicate specific needs for the course as it relates to approved accommodations. Accommodations may not be implemented until the instructor is provided an accommodation letter and discusses the accommodation plan for this course directly with the DAS student. Accommodations may not be implemented retroactively. For additional information regarding DAS, please visit the website: http://equityandinclusion.emory.edu/access

**Honor Code**

The Honor Code applies to all assignments, in and out of the classroom. All work in this course must be entirely your own and entirely original to the requirements of this course in this semester. For more info, visit: http://oxford.emory.edu/catalog/regulations/honor-code.html
Religious Holidays Arrangements

Instructors are encouraged, not required, to accommodate students' academic needs related to religious holidays. Students are expected to inform professors by the end of the second week of class each semester of any planned religious observances that conflict with class attendance, and make mutually agreeable arrangements to complete any work missed. If you need guidance negotiating your needs related to a religious holiday, the College Chaplain, Rev. Lyn Pace, ppace@emory.edu, is willing and available to help. **Please be aware that Rev. Pace is not tasked with excusing students from classes or writing excuses for students to take to their professors. Emory’s official list of religious holidays may be found on this [link](http://www.religiouslife.emory.edu/faith_traditions/holidays.html). Follow this [link](http://www.religiouslife.emory.edu/faith_traditions/holidays.html), for a more comprehensive multifaith calendar.

Additional information and handouts

Additional helpful handouts and resources will be posted on Canvas.

Proper Behavior in Class

Class is an inclusive learning environment: respect one another.
You may be asked to leave class for exhibiting rude, immature, or disruptive behavior during a specific class session.
Remember to mute your microphone when you are in the main session. You can unmute during discussion in breakout rooms.
You should not use your cellphone during class activities.

Content goals. You will be expected to master these areas of chemistry:

- The scientific method
- The structure of the atom, including how this was developed by scientists
- Precision and accuracy
- Energy
- Conversion between different measuring systems
- Significant figures
- Subatomic particles and structure of the atom
- Isotopes
- The periodic table
- Moles and molar mass
- Quantum theory and electromagnetic radiation
- Electron configurations
Lewis dot symbols
Ionic substances, including naming
Oxidation-reduction
Covalent substances, including naming
Electronegativity and bond polarity
Lewis structures
Resonance
Formal charges
Bond energy
VSEPR, VB, and MO theory
Molecular shapes and polarity
Hybridization of orbitals
Alkanes and line-angle notation*
Newman projections and conformations*
Stereochemistry*
Intermolecular forces
Coordination compounds

(All from Burdge/Overby except * material which will be from Carey)