CHEMISTRY 150

FALL 2018

CLASS SCHEDULE:	**Section 5** TTh – 10:00-11:15 AM (Rm 423) **Section 6** TTh – 11:30-12:45 PM (Rm 423)
INSTRUCTOR:	Dr. Nichole Powell
OFFICE:	OSB 420
OFFICE HOURS:	Designated hours: **Mon** 5:00 pm – 6:00 pm; **Thurs** 5:30 pm – 6:30 pm
CONTACT INFORMATION:	**Email**: nichole.powell@emory.edu ; **Telephone**: 770-784-8396

COURSE DESCRIPTION:

Structures and Properties is the first of a two-semester foundational chemistry sequence required by all science majors and pre-health students. The course introduces students to and builds a strong foundation in atomic and molecular structure. The course itself "builds from the bottom up," starting from atomic structure and works its way up through molecular structure and ionic compounds. Students will be able to describe and interpret physical properties like packing, simple unit cells, and lattice energies from both a qualitative and quantitative perspective. The course also incorporates modern spectroscopic tools including mass spectrometry, and X-ray Diffraction to answer the question, "How do we know?" – using them as tools to determine structure. Intermolecular forces are also highlighted to develop the understanding of phases of matter, changes of state and polarity, and will open to the door to learn about weak interactions in biological systems. An introduction to molecular conformation and stereochemistry stresses the essential skill of 3-dimensional visualization.

COURSE GOALS

- Students will use their understanding of electrostatics and Coulomb's Law to predict changes in potential energy for a given atomic/molecular system.
- Students will use their understanding of potential energy to predict and explain measurable physical properties like bond energy, lattice energy, rotational energies, and intermolecular interactions.
- Students will recognize, construct and use atomic models to make predictions about atomic and periodic properties
- Students will be able to do mathematical calculations to propose, support, or refute claims about chemical phenomena.
- Students will be able to interpret scientific data presented in mathematical and graphical form.
- Students will be able to write scientific explanations that consistently include claim, evidence, and reasoning.
- Students will be able to recognize, construct, and use 3-D representations to make predictions about physical properties (polarity, melting point/boiling point, and chirality)
- Students will be able to convert a 3-D representation to a 2-D representation.

CLASS MATERIALS (REQUIRED):

1. "Chemistry: Atoms First, 3rd Edition," Burdge and Overby (electronic book strongly recommended)
2. "Organic Chemistry, 10th Edition," Carey and Guilano (electronic book strongly recommended)
3. McGraw-Hill CONNECT access (you will get this access with the Chemistry: Atoms First e-book)
4. ALEKS Registration Code
5. Scientific calculator (must be brought to every class). Calculators that can download and/or store information, can automatically solve equations or perform conversions, or can be programmed, are not allowed on quizzes/exams. The two calculators which are allowed are TI-30Xa or 30X II. These are generally available from places like Amazon or WalMart for under $15. Any other calculators will have to be checked and approved by the instructor. Students will not be allowed to borrow calculators from their classmates during class assignments or exams. The use of cell phones and PDAs will not be allowed.

CLASS MATERIALS (RECOMMENDED):

- The solutions manuals for the textbooks
- "Molecular Visions" Model Kit (Highly recommended)

COURSE COMPONENTS:

LECTURE:

Lectures will emphasize the concepts and skills necessary for you to understand and investigate chemical behavior. It is also important that you become conversant with the language chemists use. Research on learning shows that explaining concepts helps you to better understand and retain the material that just merely listening to an explanation. It is therefore important that you prepare for each class, actively participate in lecture and ask questions when you do not understand the concepts. To help you understand the course material each class session will involve you working in groups to solve problems and explain your problem-solving strategy.

Attendance

You are expected to attend each class period. Attendance is taken at the beginning of class, and it is your responsibility to ensure that your attendance was correctly recorded before you leave at the end of the class period. You are allowed 3 absences in lecture. Each absence exceeding 3 absences will result in a corresponding point deduction from your final course grade (eg. 4 absences= 1 pt, 5 absences= 2 pts etc). There are no excused absences. Being cited 2 times for any combination of the following behaviors will count as 1 absence: arriving more than 10 minutes late for class, walking in and out of class (unless you are sick), leaving class early, being inattentive or working on other assignments during class.

You are responsible for all material covered in the lecture even if you were absent.

Religious Holidays: Instructors are encouraged, not required, to accommodate students' academic needs related to religious holidays. Please make every effort to negotiate your religious holiday needs within the first two weeks of the semester; waiting longer may compromise your instructor's ability to extend satisfactory arrangements. If you need guidance negotiating your needs related to a religious holiday, the College Chaplain, Rev. Lyn Pace, ppace@emory.edu, Candler Hall 202, 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 at http://www.religiouslife.emory.edu/faith_traditions/holidays.html.

Graded Assignments

Graded assignments (includes graded homework and learning modules) will be given throughout the semester. The assignments will usually be housed on Canvas. Graded assignments will include chapter quizzes/homework which will usually be due within 48 hrs after we have completed the chapter in class.

Non-graded Assignments

You are expected to complete all assignments regardless of whether or not they will be graded. You are expected to work all in-chapter and (at minimum) the end of chapter problems in your textbook that are indicated on Canvas, unless otherwise noted.

In-class Assignments

In-class assignments include quizzes and worksheets. Every five checked worksheets will be grouped and assigned a grade equivalent to one quiz grade. Your lowest grouped worksheet or quiz grade will be dropped. You cannot make up in-class assignments (including worksheets) if you are absent.

Examinations

Three (3) exams are scheduled during the regular class period. No make-up examinations will be given. Excuses including the reason for missing an exam must be presented **before** the scheduled exam- this may be done by email or sending a note to class. Ensure that your excuse is verified and accepted by the Office for Undergraduate Education. If I accept your excuse, the grade obtained on the final exam will count in place of the missed exam. If your excuse is not accepted you will receive a zero for that exam. You may only be excused from missing 1 exam.

Anticipated Exam Schedule:

Exam	Projected Date
I	Thursday, Sept. 27
2	Thursday, Oct. 25
3	Thursday, Nov. 29

Exam dates are subject to change. The sections to be covered in each exam will be announced in class.

Final Exam – will be given during the final exam period.
Section 5 on Thursday, December 13 at 7 pm - 10 pm.
Section 6 on Tuesday, December 18 at 9 am - 12 pm.

The final examination is mandatory and will be comprehensive. Any material discussed during the semester may be included in this exam. Final exams will not be returned.

COURSE GRADE:

Your course grade will be computed as follows:

ALEKS Objectives	4%
ALEKS Final Assessment	4%
Graded Homework (CONNECT)	4%
In class Assignments	3%
Exams (3)	63%
Final Exam (Cumulative)*	22%
LearnSmart	1%(Bonus)
Total	101%

* Your final exam grade may be used to replace your lowest Exam grade with the following exceptions: 1) If you have a zero on an exam due to missing the exam without a valid excuse no grade may be replaced, including the zero. 2) If you missed an exam with an accepted excuse only the grade for the excused exam may be replaced.

Grading Scale

A = 93 – 100 A- = 90 – 92 B+ = 87 – 89 B = 83 – 86 B- = 80 – 82 C+ = 77 – 79
C = 73 - 76 C- = 70 - 72 D+ = 67 - 69 D = 60 – 66 F = below 60 F

Final course grades will only be available in OPUS. Final exam grades will not be distributed.

Errors in grading:

Exams should be reviewed immediately upon return for grading or addition errors. If there appears to be an error, submit your request for a regrade **in writing** no later than three days after the exam was

returned in class. The Regrade Request form is available in Canvas. Please not that partial credit is awarded at my discretion and is not negotiable.

HONOR CODE

It is expected that you will adhere to the Honor Code http://oxford.emory.edu/catalog/regulations/honor-code.html. It is expected that you will not cheat, contribute to or condone the cheating of others. You are therefore expected to submit your own best effort on all assignments. Exams will not be proctored unless it is believed that the Honor Code is being violated. Pens/pencils and a non-programmable calculator are the only tools you are allowed to bring to and use in exams (no cell phones). Having a cell phone during a quiz/exam will be treated as a violation of the Honor Code. Unless otherwise specified, collaboration is not allowed in any assignment to be submitted.

CRITICISM/FEEDBACK

Criticism/feedback is given in a variety of ways – dependent on the type of assignment. Below is the key for criticism/feedback given on quizzes/exams.

CAL – calculation error
CON – inadequate understanding of concept
CVF – problems with conversion factor
FORM – incorrect formula or wrong use of formula
SFU– problems with significant figures and/or units

"RULES OF ENGAGEMENT"

Class should be an environment that is conducive to learning and free from distractions that could interfere with the learning process. Expectations regarding class deportment and interpersonal interaction will be discussed on the first day of class. Below are a few general notes.

- You are expected to arrive to class on time and stay for the entire class period (no walking in and out of class unless you are sick).
- You are expected to be attentive and participate during class.
- You are expected to bring your textbook and calculator to class.
- Laptops, tablets, and cell phones are only to be used for class purposes. You will be asked to leave the class if you are caught using these devices for purposes other than the current class assignment.

Q&A SESSIONS

A question and answer session will be conducted in the class session prior to each exam (as time permits).

CANVAS

Canvas will be the primary means of communicating outside of class. It will also house supplementary course resources. Students are also expected to read the Canvas site regularly.

AVAILABLE RESOURCES

- Physical copies of the textbooks used in this course (as well as solutions manuals) are available as course reserves in the library.
- A few modeling kits are also available in the library reserves.
- **Need help?** – please come to office hours at the first sign of trouble. You should also attend the weekly SI sessions even if you think you have mastered the material. Tutors are also available for the course.
- **Need more problems?** - the textbook "Chemistry: A Molecular Approach" by Tro (including solutions manual) and "General Chemistry" by Chang are available as course reserves in the library.

ACCOMMODATION

The Office of Accessibility Services (OAS) works with students who have disabilities to provide reasonable accommodations. In order to receive consideration for reasonable accommodations, please contact the OAS and complete the registration process. Faculty may not legally provide you with accommodations until an accommodation letter has been processed and discussed with them; accommodations do not start until this point and are not retroactive. Students registered with OAS who receive a letter outlining specific academic accommodations are thus strongly encouraged to immediately coordinate a meeting with their professors to discuss a protocol to implement accommodations that will (or may) be needed over the course of the semester. This meeting should occur as early in the term as possible. Contact Megan Bohinc in OAS for more information at (770) 784-4690 or oas_oxford@emory.edu.

ADDITIONAL INFORMATION

Exam keys will be posted on Canvas. Exam keys are posted 24 hrs after the exam is returned in class. It is very important that you spend time reworking questions you had difficulty with before looking at the exam key. If you are still having difficulty after consulting the key – please see me for help.

COURSE SCHEDULE

General Chemistry by Burdge and Overby Chapters 1-7
Organic Chemistry by Carey: Chapters 1-5 (Selected topics)

A Course Schedule that details the topics that will be covered each class is available on CANVAS.
* The learning objectives for each chapter are available on Canvas.

The course schedule is subject to change.

* No class will be held on October 23rd. A makeup class will be held in OSB 115 on Thursday, October 11th at 8:00–9:30am.

Welcome to CHEM 150!

In order for you to become fluent and proficient in a foreign language (eg. Spanish or French) you have to spend time practicing (reading, writing, and speaking) the language. Chemistry is like a foreign language and in order to become proficient you must spend time reading (textbook), writing (solving many problems, and a variety of problems), and speaking (explaining concepts and using the correct terminology) Chemistry. All activities and assignments given in this course are to help you become proficient in Chemistry. I encourage you to have an open mind, actively participate in class and lab, and consistently spend time practicing Chemistry!

Student work submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education.

EMORY STATEMENT ON CIVIL DISCOURSE:

We believe the manner in which we interact with each other is critical to cultivating and maintaining a meaningful and effective intellectual environment. We encourage a climate of respect and inclusiveness that welcomes and embraces community members with diverse backgrounds and life experiences. We deliberately seek multiple perspectives and support the free and open exchange of ideas and civil discourse. We affirm the inherent dignity in all of us and we strive to maintain a climate of justice marked by respect for each other. Our community can only continue to thrive when we approach each conversation with an open mind and when each member can contribute fully.