CHEM 1211K: Chemical Principles I
Section B, Fall 2015

Instructor
Dr. Carrie Shepler
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Phone: 404-385-1342
Office: Clough Commons 584A

The best way to contact me is via email. It can take up to 48 hours to respond to on weekends. When traveling, I may not be able to respond until returning to the office, but I will set an out of office message to this effect.

Office hours
Monday 3-4pm
Tuesday 5-6pm
Wednesday 11am-12pm

Course Components
Lecture 1,2 MWF 8:05 – 8:55 am Clough Commons 144
Laboratory once weekly 2 hours and 50 minutes by section
Recitation 1 once weekly 50 minutes by section
Exams W 7:05—7:55pm Clough Commons 144
1 Laptops are NOT permitted during lecture at any time with the exception of the first week.
2 You will be expected to participate actively in class discussions and group work.

Lecture Exams will be held on the following dates at 7:05pm.
Exam 1 Wednesday, September 16 Clough Commons 144
Exam 2 Wednesday, October 21 Clough Commons 144
Exam 3 Wednesday, November 18 Clough Commons 144

Final Exam
The final exam is cumulative and will be held on according the final exam schedule posted by the Registrar:
http://www.registrar.gatech.edu/students/exams.php
Final Exam Monday, December 7 8:00—10:50am Clough Commons 144

Please plan your schedule accordingly for the 3 mid-term exams and final exam. Early final exams will NOT be given to accommodate travel schedules.

Course Objectives
• Identify steps in the scientific method.
• Apply concepts of measurement and significant figures to laboratory practices and chemical problems.
• Correlate position on the periodic table to properties of elements and bonds.
• Calculate amounts of chemical species using information from chemical formulas and chemical equations.
• Correlate information from balanced chemical equations to the microscopic scale.
• Explain atomic structure using the quantum mechanical model of the atom.
• Explain periodic trends using theories of electronic structure.
• Predict molecular properties and behavior based on molecular structure and bonding theories.
• Interpret thermochemical equations and data and evaluate energies of systems.
• Summarize the behaviors of gases and explain them using the kinetic-molecular theory.
• Correlate the molecular level process that occur during heating, cooling, and phase changes to the amount of energy removed or added to a system during each process.
• Apply the concepts of colligative properties to everyday life.
• Apply concepts of nuclear and radiochemistry to everyday life.
Required Course Materials
1. Chemistry, the 7th edition by McMurray, Fay, and Robinson
3. Turning Technologies Personal Response Transmitter or Response Ware
4. CHEM 1211/1212 Laboratory Manual
5. 100% cotton lab coat
6. Laboratory notebook with perforated pages and carbonless copy.

You will not be permitted to work in lab unless you are wearing safety glasses (provided) or goggles, long pants or a floor-length skirt (no bare skin below the waist), a lab coat, socks, and closed shoes.

Grading Policies
Laboratory
You must pass Laboratory to pass the overall course. Teaching assistants will have the responsibility for establishing laboratory grades. Students are graded on pre-lab quizzes, formal lab reports, summary reports, report accuracy, lab technique and safety and two laboratory quizzes/practicums. A grade of 60% or better in the lab is considered passing. If you fail CHEM 1211K lab, you must retake the entire lecture and lab. Your teaching assistant may specify that students work in pairs or in larger groups for certain experiments. Whether this is the case or not, all reports must be prepared independently by each student. Please see the lab syllabus for more details.

Exams
Three fifty-minute closed-book exams will be given during the semester. Exams are 20 questions and multiple choice. Scantron cards and a periodic table will be provided.

Final Exam
A two hour and fifty minute, multiple choice final exam will be given at the time and place determined for this course by standard Georgia Tech procedures.

Crib Sheets
One 8.5 x 11 crib sheet will be permitted for use on each of the three intermediate exams. Only one side of the crib sheet may be used, and they must be handwritten. No photocopies are permitted. Your name and GTID should be written on the back of each crib sheet.

Four crib sheets may be used for the final exam as described above – one for each of the previous exams plus an additional one for new material on the final. All of your crib sheets will be collected with your final exam and must have your name and GTID on the back of each page.

Grade Change
Re-grades of hour exams must be requested within one week of the date that the graded exams are returned to students.

Make-up Exams
Make-up exams will be given for valid excused absences approved by the Dean of Students Office or with advanced notice (1 week minimum) approval of the instructor. The instructor may request that the student seek approval from the Student Academic and Financial Affairs Committee. If a student has an approved excuse for missing an exam, either a make-up exam will be given within 24 hours or his/her grade for that exam may be calculated from his/her performance on that part of the final exam that covers topics from the missed exam. A Grade Improvement Plan will be described during the semester but it will only apply to those having taking prior exams or those with approved absences. You must contact Dr. Shepler (carrie.shepler@chemistry.gatech.edu) immediately if you miss an exam without an excused absence, and you may not be permitted a make-up or replaced grade.
Daily (Bucket) Points: MasteringChemistry, Clickers, Exam Wrappers, and Recitation

MasteringChemistry, clickers, exam wrappers, and recitation comprise a total of 10% (100 points) of your overall course grade. **You need 110 points to earn the full 10% or 100 course points, and you may accumulate these points through various combinations of the four categories.**

<table>
<thead>
<tr>
<th>Assignment Type</th>
<th>Number of Assignments</th>
<th>Points Per Assignment</th>
<th>Total Points Available from Assignment Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MasteringChemistry</td>
<td>12</td>
<td>10</td>
<td>120</td>
</tr>
<tr>
<td>Clickers</td>
<td>TBD</td>
<td>2, 0, 1</td>
<td>30 (adjusted)</td>
</tr>
<tr>
<td>Recitation</td>
<td>15</td>
<td>2, 1, 0</td>
<td>30</td>
</tr>
<tr>
<td>Exam Wrappers</td>
<td>3</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td><strong>TOTAL POINTS POSSIBLE</strong></td>
<td></td>
<td></td>
<td><strong>195</strong></td>
</tr>
</tbody>
</table>

• **MasteringChemistry:** There are 12 assignments valued at 10 points each for a total of 120 possible points. Each assignment has a due date, and **there are no individual extensions available.**

• **Clickers:** Each clicker question asked in class is valued at 1 point for any answer and 2 points for a correct answer. There are no make-up opportunities. At the end of the semester, the points earned will be normalized to 30. For example:
  
  If a total of 30 clicker questions are offered over the course of the semester, then there are 100 possible points. If you earn 75 of these points, you have 75/100 = 0.75 of the points possible. 0.75 x 30 = 22.5, and you have earned 22.5 points available in daily work.

• **Recitation:** Attendance and participation in recitation is worth 3 points per sessions.
  
  2 points = attendance for the full session with participation
  1 point = attendance with inadequate participation
  0 points = no attendance

• **Exam Wrappers:** After each exam, an Exam Wrapper assignment will be passed out when your exams are returned. These assignments are take-home and due the Friday after your exams are returned. Exam Wrappers are worth 5 points each, for a total of 15 points in the bucket.

### Course Grades (out of 1000 possible points)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>15% or 150 points</td>
</tr>
<tr>
<td>Exam 2</td>
<td>15% or 150 points</td>
</tr>
<tr>
<td>Exam 3</td>
<td>15% or 150 points</td>
</tr>
<tr>
<td>Final Exam</td>
<td>22.5% or 225 points</td>
</tr>
<tr>
<td>Daily points</td>
<td>10% or 100 points</td>
</tr>
<tr>
<td>Laboratory¹</td>
<td>22.5% or 225 points</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100% or 1000 points</td>
</tr>
</tbody>
</table>

¹Students earning below 60% in the laboratory component of the course will receive an F for the semester and will be required to repeat both the lecture and the laboratory component.

**Grading Scale**

A  90.1 – 100%  (901—1000 points)
B  80.1 – 90.0%  (801—900 points)
C  70.1 – 80.0%  (701—800 points)
D  60.1 – 70.0%  (601—700 points)
F  Less than 60.0%  (less than 600 points)
  OR  Less than a 60% in laboratory

**We reserve the right to adjust this scale, but adjustments will only be made at the end of the semester after all grades are calculated.**
Grade Improvement Plan
The final exam will be composed of four sections with the first two sections representing material from exams 1 – 3, respectively. The remaining section will cover material after exam 3. If you earn higher on a given section than you did on the corresponding exam, that percentage will replace the original score. For example, if a student earns a 75% on exam 1 and a 95% on section 1 of the final exam, the 95% will be used in the grade calculation. It is possible for all three original exam scores to be replaced with the Grade Improvement Plan. You must have attempted the original individual exam or have a written excused absence to be eligible for the Grade Improvement Plan.

Tutoring
There are many options available for getting help with this course—all of them free! Each offers a somewhat different focus, and we urge you to take advantage of as many of them as you need!

More information on each resource can be found at [http://www.chemistry.gatech.edu/academics/freshman-program](http://www.chemistry.gatech.edu/academics/freshman-program)

- **Recitation**
  - This is a 50 minute block of time already built into your schedule. You and other students in your lab section can meet with your TA and can ask questions concerning homework and lecture material.

- **Teaching Assistant (TA) Office Hours**
  - Each teaching assistant affiliated with the course will hold at least one office hour per week for lab and lecture questions in Clough Commons 278.
  - TA office hours schedule can be found on the "Resources" folder of your lecture T-Square site.
  - You may see and receive help from any teaching assistant, not just your own.

- **Center for Academic Success ([http://success.gatech.edu/tutoring](http://success.gatech.edu/tutoring))**
  - 1-to-1 tutoring (two hours free per week for almost all 1000 and 2000 level courses on campus) ([http://www.success.gatech.edu/tutoring/1-to-1](http://www.success.gatech.edu/tutoring/1-to-1))

- **Residence Life's Learning Assistance Program ([http://www.housing.gatech.edu/academicservices/lap.cfm](http://www.housing.gatech.edu/academicservices/lap.cfm))**
  - Drop-in tutoring for many 1000 level courses

- **OMED: Educational Services ([http://www.omed.gatech.edu/redux/](http://www.omed.gatech.edu/redux/))**
  - Group study sessions
  - Tutoring programs

Office of Disability Services
Student learning disabilities documented through this department will be honored as detailed to the instructor. Please inform Dr. Shepler and Dr. Michael Evans (for lab; michael.evans@chemistry.gatech.edu, Clough 584C) within the first week of the course or as soon as possible. [http://disabilityservices.gatech.edu/](http://disabilityservices.gatech.edu/)

Honor Code
The Georgia Tech Honor Challenge states “I commit to uphold the ideals of honor and integrity by refusing to betray the trust bestowed upon me as a member of the Georgia Tech community.”

All students are expected to comply with the honor code regulations set forth by this institution. All violations of the honor code will be reported to the Office of Student Integrity. Violations of the honor code can result in a zero on the particular assignment, a letter grade reduction, and can in some instances, result in expulsion from the
Georgia Institute of Technology

School of Chemistry and Biochemistry institution. See http://www.honor.gatech.edu/ for details. During anytime throughout the semester you have question involving the Academic Honor Code, please contact your instructor or a freshman program faculty member.

Course Webpage(s)

Information of interest to students will be posted on the course webpage: http://tsquare.gatech.edu Separated T-square sites are used for lecture and lab components. Students should consult the webpage at frequent intervals throughout the semester.

Post-Lecture homework problems can be accessed directly via the following address:

http://www.pearsonmylabandmastering.com

Instructions for purchasing an access code and registering for MasteringChemistry can be found on the T-Square lecture site for CHEM 1211K under “Resources.”

This term we will be using Piazza for class discussion. The system is highly catered to getting you help quickly and efficiently from classmates, the TA, and professors. We encourage you to post your questions on Piazza. You can access Piazza easily from the 1211K T-square sites. If you have any problems or feedback for the developers, email team@piazza.com.

Course Expectations

We expect students to arrive prepared for class, to participate in class activities and discussions, and to utilize office hours for additional help when needed.

In return, students should expect instructors to arrive prepared for class, to engage them in activities and discussions that further their understanding of course material, and to be available during office hours.

Students should expect to spend 6-9 hours per week outside of the classroom and laboratory to excel in this course. This includes time spent reading the textbook, watching videos as assigned, working problems, and writing laboratory reports. Students are encouraged to develop a pattern of preparing for class, attending class, and then reviewing after each class period.
# Schedule of Homework Assignments:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Parent Assignment Deadline</th>
<th>Adaptive Follow-up Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Mastering (no pts)</td>
<td>Monday, August 24</td>
<td>No follow-up</td>
</tr>
<tr>
<td>Homework Chapter 1 and 2</td>
<td>Wednesday, August 26</td>
<td>Friday, August 28</td>
</tr>
<tr>
<td>Homework Chapter 3</td>
<td>Wednesday, September 2</td>
<td>Friday, September 4</td>
</tr>
<tr>
<td>Homework Chapter 4</td>
<td>Wednesday, September 2</td>
<td>Friday, September 4</td>
</tr>
<tr>
<td>Homework Chapter 5</td>
<td>Tuesday, September 15</td>
<td>Thursday, September 17</td>
</tr>
<tr>
<td>Homework Chapter 6</td>
<td>Wednesday, September 23</td>
<td>Friday, September 25</td>
</tr>
<tr>
<td>Homework Chapter 7</td>
<td>Wednesday, September 30</td>
<td>Friday, October 2</td>
</tr>
<tr>
<td>Homework Chapter 8</td>
<td>Friday, October 16</td>
<td>Sunday, October 18</td>
</tr>
<tr>
<td>Homework Chapter 9</td>
<td>Wednesday, November 4</td>
<td>Friday, November 6</td>
</tr>
<tr>
<td>Homework Chapter 10</td>
<td>Wednesday, November 11</td>
<td>Friday, November 13</td>
</tr>
<tr>
<td>Homework Chapter 11</td>
<td>Tuesday, November 17</td>
<td>Thursday, November 19</td>
</tr>
<tr>
<td>Homework Chapter 12</td>
<td>Monday, November 30</td>
<td>Wednesday, December 2</td>
</tr>
<tr>
<td>Homework Chapter 19 (10 pts)</td>
<td>Friday, December 4</td>
<td>No follow-up</td>
</tr>
</tbody>
</table>

## Homework Assessment:

1. **Three (3) submissions will be allowed for each problem in the homework sets; you will receive 100% credit for a correct response on all three submissions except for multiple-choice problems.** In correct answers to multiple choice questions are penalized by \((100\% \text{ question point value} / (\text{number of answer options} - 1))\) per wrong answer. Homework is due at 11:59pm on the date indicated.

2. Each homework is worth a total of 10 points. Seven of these points can be earned from the original homework set. If you earn a 95% or higher on the original homework set, you will automatically earn the remaining three points and will not be asked to complete the Follow-up homework set. If you do not earn a 95% on the original homework set you will be given a Follow-up homework set where you can earn three points.
Georgia Institute of Technology  
School of Chemistry and Biochemistry

Tentative Lecture Schedule:

<table>
<thead>
<tr>
<th>Week Of</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 17</td>
<td>Introduction</td>
<td>Chapter 2</td>
<td>Chapter 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>(Last day to register and/or make schedule changes. Registration closes at 4:00 pm ET)</em></td>
</tr>
<tr>
<td>August 24</td>
<td>Chapter 3</td>
<td>Chapter 3</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>August 31</td>
<td>Chapter 4/Chapter 5</td>
<td>Chapter 5</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>September 7</td>
<td>Labor Day Holiday</td>
<td>Chapter 5</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>September 14</td>
<td>Chapter 6</td>
<td>Exam 1 / In-class Q&amp;A review</td>
<td>Chapter 6</td>
</tr>
<tr>
<td>September 22</td>
<td>Chapter 7</td>
<td>Chapter 7</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>September 28</td>
<td>Chapter 8</td>
<td>Chapter 8</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>October 5</td>
<td>Chapter 8</td>
<td>Chapter 8</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>October 12</td>
<td>Fall Break - Holiday</td>
<td>Chapter 8</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>October 19</td>
<td>Chapter 9</td>
<td>Exam 2 / In-class Q&amp;A review</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>October 26</td>
<td>Chapter 9</td>
<td>Chapter 9</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>November 2</td>
<td>Chapter 10</td>
<td>Chapter 10</td>
<td>Chapter 10</td>
</tr>
<tr>
<td>November 9</td>
<td>Chapter 11</td>
<td>Chapter 11</td>
<td>Chapter 11</td>
</tr>
<tr>
<td>November 16</td>
<td>Chapter 12</td>
<td>Exam 3 /In-class Q&amp;A Review</td>
<td>Chapter 12</td>
</tr>
<tr>
<td>November 23</td>
<td>Chapter 12/Chapter 19</td>
<td>Thanksgiving Break - Holiday</td>
<td>Thanksgiving Break - Holiday</td>
</tr>
<tr>
<td>November 30 <em>(Dead Week)</em></td>
<td>Chapter 19</td>
<td>Chapter 19</td>
<td>Chapter 19</td>
</tr>
<tr>
<td>December 7</td>
<td>Final Exam Week</td>
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</table>

See [http://www.registrar.gatech.edu/students/exams.php](http://www.registrar.gatech.edu/students/exams.php) for current final exam schedule.