CHM 20000  Spring 2017

You are responsible for knowing and following the policies and procedures for CHM 20000 as described in this document.

Instructor  Dr. Minjung Ryu  Office: WTHR 110/BRNG 4166
            Email: mryu@purdue.edu

Office Hours  Appointment only

Course Supervisor  Erika Meza (meza1@purdue.edu)

Teaching Assistants  Erika Meza (meza1@purdue.edu), Jocelyn Nardo (jnardo@purdue.edu)

Lecture  Friday, 2:30 PM - 3:20 PM in GRIS 102

Blackboard URL  http://www.itap.purdue.edu/tlt/blackboard

Laboratories

<table>
<thead>
<tr>
<th>Section</th>
<th>Day</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>0002</td>
<td>Wednesday</td>
<td>7:30 - 10:20 AM</td>
<td>BRWN 2134</td>
</tr>
<tr>
<td>0003</td>
<td>Wednesday</td>
<td>2:50 - 5:40 PM</td>
<td>BRWN 2134</td>
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</tbody>
</table>

Course Description  This course is an integrative study of the fundamental principles and ideas of chemistry as chemists have come to understand them. The pedagogy of this course is designed to provide reflective, interactive, and hands-on inquiry learning experiences that will assist elementary education teaching majors to develop key chemistry knowledge for their own classrooms. This course is required of students in the elementary education program in the School of Education and is not available for credit towards graduation in the School of Science.

Prerequisite:  MA 130 or equivalent

Required Materials

- **Textbook (Optional):** This course does not require any textbook, but assign two optional/recommended textbooks. Throughout the course, some sections of the books will be identified in each lecture and lab as supplementary readings. When readings are required, they will be posted on the Blackboard. You can access these two textbooks in the chemistry library (WTHR 301), Chemistry Resource Room (WTHR117), and the instructor’s office (WTHR 110).

- **Laboratory Manual (Required):** *Chemistry 20000 Laboratory Manual*, Available at Boiler Copy Center, Purdue Memorial Union Rm. 186

- **Lab materials:** In addition to a lab manual, a **padlock** for your assigned lab drawer (by week 4), a **sharpie** (black, permanent ink) for marking lab glassware, and **approved safety goggles**, available at the bookstores, outside WTHR 200 during the first two weeks of classes, or from the storeroom on the 1st or 2nd floor in BRWN, are required for lab.

- **i>clacker device:** This course will use i>clacker questions in lectures. Your response to i>clacker questions will count as a participation grade. You can purchase i>clacker at the bookstores, outside WTHR 200 during the first two weeks of classes.

- **Calculator:** A **simple battery operated scientific calculator** may be needed for exam.
Learning Outcomes
CHM 20000 is to prepare elementary education students for teaching chemistry ideas in elementary schools. Note that this course is NOT for learning about how to teach chemistry, but gaining fundamental knowledge about chemistry. Specifically, by the end of this course students will

- Gain fundamental understandings of following topics: Classification of matter; Atomic structure and periodic table of elements; Properties of matter in three states; Properties of water; Properties of water solutions; Energy in chemistry contexts; Acids and bases; and Oxidation and reduction.
- Apply chemistry ideas to following topics: Polymers and plastics; foods; and Climate change.
- Be able to engage in chemical reasoning and scientific methods of collecting and analyzing data in chemistry contexts.
- Gain knowledge in lab activities that can be potentially used in elementary education contexts.

These outcomes are aligned with Indiana’s Science Education Standards (See pages 6-9 in Lab Manual). Elementary education students will take science teaching methods course (EDCI 365) that will facilitate transferring chemistry knowledge for teaching in elementary schools. In that course, students will be asked to reflect on their chemistry knowledge and process of learning chemistry that they have experienced in this course.

How to succeed in this Course
To succeed in this course, first students need to read carefully the grade breakdown and course requirements stated in the syllabus. Understand that grading of this course is not solely based students’ knowledge in chemical facts and correctness in their knowledge. Rather, this course highly encourages all students to reason about chemistry. Note that constructing chemical explanations with supporting evidence is more emphasized in lab and class participation whereas correctness is more emphasized in exams. Homework assignments and quizzes are to help students transition from the former to the latter.

Expect to spend 4 - 6 hours per week on Chemistry outside of the normal class time. This time includes preparing for lecture, reviewing your notes after lecture, completing homework, reading, lab assignments, and preparing for quizzes. There are several free sources of help for CHM students as follows.

Instructor: You can set up a meeting via email (mryu@purdu.edu). When requesting an appointment please suggest 2-3 times that will work for you and she will let you know which of those is best for her.

Weekly TA Office Hours: You can email to set up an appointment.

Course Supervisor: You can also email to set up an appointment.

BRWN 1144, The General Chemistry Office, 494-5250 The General Chemistry office handles all the administrative details associated with the course. All non-chemistry questions about the course should be directed to this office. For example, go to BRWN 1144 to get grade checks, to discuss exam conflicts, to get clarification on course policies, to resolve grade issues, and to get signatures on university forms such as add/drop forms. The Course Coordinator and assistants Mrs. Linn and Mrs. Reynolds are able to help you with a variety of requests so you can maximize your success in chemistry.

Chemistry Resource Room, (located in WTHR 117) provides a place to study and various kinds of help for all general chemistry students. You can receive free help and tutoring from the staff assigned to this area and find a variety of materials useful for studying chemistry.
Here is a tentative schedule for class topics. Changes in lecture topics and/or days may take place during the semester. Any changes, should they occur, will be announced in lectures and course Blackboard. If material is covered in lecture or announcements are made, you are responsible for that information. You are required to read all assigned reading materials, which will be posted in Blackboard. Homework will also be posted in Blackboard. All homework assignments are due midnight of the day before lab, and you are required to submit your homework to the course Blackboard. All quizzes will be administered in labs. Homework deadlines and dates for quizzes are indicated in the table below. For further information, please see the corresponding unit folders on Blackboard.

(Wait until you know the date of the final exam before you make travel plans that might conflict with the exam. Early exams will not be given to accommodate your travel plans.)

<table>
<thead>
<tr>
<th>Week &amp; Date</th>
<th>Topic</th>
<th>Essential Questions</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/13</td>
<td>Nature of chemistry</td>
<td>• What is chemistry?</td>
<td>How does a scientific theory become a scientific law? from <em>Science and Children</em></td>
</tr>
</tbody>
</table>
| 2 1/20     | Air as a mixture | • How do people describe and represent matter in chemistry?  
• What are ways to categorize matter? | Chemistry is the Study of Matter from *Middle School Chemistry* |
| 3 1/27     | Small particles that make up matter | • What are “small particles” in chemistry?  
• How are submicroscopic structure and organization of particles related to observable properties? | The Captivating Chemistry of Coins from *ChemMatters* |
| 4 2/3      | Structure and organization of atoms | • What does it look like inside an atom?  
• How have our understandings of atom historically developed?  
• What does the periodic table of element tell us about elements and their properties? | Parts of the Atom from *Middle School Chemistry* |
| 5 2/10     | Air as a gas | • What are observable properties of gas?  
• How can chemistry explain the observable properties of gas with behavior of gas particles? | Hot Air Balloons from *ChemMatters* |
| Midterm 1: TUE 2/14 8:00 – 9:30 PM (GRIS 103) | | | |
| 6 2/17     | Observable properties of water | • What are observable properties of water?  
• How can chemistry explain properties of water? | Water of Life from *ChemMatters* |
| 7 2/24     | Submicroscopic structures of matter and intermolecular forces | • What are molecules and how do molecules interact with each other?  
• What are ionic bonding and observable properties of compounds made with ionic bonding? | The Great Hartford Circus Fire from *ChemMatters* |
| 8 3/3      | Properties of solutions | • How does dissolving solute into water change properties of water? | *Salting Roads from ChemMatters* |
### Energy and matter
- What is energy?
- How do the ideas of energy help us explain and predict natural phenomena?

#### Midterm 2: TUE 3/28 8:00 – 9:30 PM (GRIS 103)

### 3/31 Electrochemistry
- How do behaviors of electrons explain electricity and oxidation/reduction?

### 4/7 Polymers and Plastics
- What are polymers?
- What are environmental concerns posed by use of synthetic polymers?

### 4/14 Food and chemistry
- What chemistry knowledge helps us understand food and nutrition?

### 4/21 Climate change and chemistry
- How does chemistry help investigate and understand climate change?

### 4/28 Course review
- What are key chemistry ideas relevant to our life and elementary science teaching?

**Final Exam: Week of 5/1/17 TBD**

### LABORATORY SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lab Project</th>
<th>Homework &amp; Quiz</th>
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<tbody>
<tr>
<td>1</td>
<td>1/11</td>
<td>Lab Week 1: No Lab (Compensation for Night Exams)</td>
<td></td>
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<tr>
<td>2</td>
<td>1/18</td>
<td>Lab Week 2: Properties of Matter 1: Classification of matter</td>
<td></td>
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<tr>
<td>3</td>
<td>1/25</td>
<td>*Lab Week 3: Properties of Matter 2: Density of matter</td>
<td>Homework 1</td>
</tr>
<tr>
<td>4</td>
<td>2/1</td>
<td>Lab Week 4: Atomic Models</td>
<td>Quiz 1</td>
</tr>
<tr>
<td>5</td>
<td>2/8</td>
<td>Lab Week 5: Properties of Gas</td>
<td></td>
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<tr>
<td>6</td>
<td>2/15</td>
<td>Lab Week 6: Amazing Properties of Water 1</td>
<td></td>
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<tr>
<td>7</td>
<td>2/22</td>
<td>Lab Week 7: Amazing Properties of Water 2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3/1</td>
<td>Lab Week 8: Properties of Water Solutions</td>
<td></td>
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<tr>
<td>9</td>
<td>3/8</td>
<td>*Lab Week 9: Energy</td>
<td>Homework 2</td>
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<tr>
<td>10</td>
<td>3/15</td>
<td>Lab Week 10: No Lab (Spring Break)</td>
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</tr>
<tr>
<td>11</td>
<td>3/22</td>
<td>Lab Week 11: Acids and Bases</td>
<td>Quiz 2</td>
</tr>
<tr>
<td>12</td>
<td>3/29</td>
<td>*Lab Week 12: Electrochemistry</td>
<td></td>
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<tr>
<td>13</td>
<td>4/5</td>
<td>*Lab Week 13: Polymers</td>
<td>Homework 3</td>
</tr>
<tr>
<td>14</td>
<td>4/12</td>
<td>*Lab Week 14: Fat Extraction</td>
<td>CHEM Project</td>
</tr>
<tr>
<td>15</td>
<td>4/19</td>
<td>Lab Week 15: TBD</td>
<td>Quiz 3</td>
</tr>
<tr>
<td>16</td>
<td>4/26</td>
<td>Lab Week 16: Checkout</td>
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</tbody>
</table>

* indicates lab weeks that have a pre-lab activity.
CHEMISTRY COURSE POLICIES

Attendance
Although attendance will not be taken in lectures due to time constraints, students are expected to be present for every lecture of the classes in which they are enrolled. Only the instructor can excuse a student from a course requirement or responsibility. When conflicts or absences can be anticipated, such as for many University sponsored activities and religious observations, the student should inform the instructor of the situation as far in advance as possible. For unanticipated or emergency absences when advance notification to an instructor is not possible, the student should contact the instructor as soon as possible by email, or by contacting the Gen Chem office that offers the course. When the student is unable to make direct contact with the instructor and is unable to leave word with Gen Chem office because of circumstances beyond the student’s control, and in cases of bereavement, the student or the student’s representative should contact the Office of the Dean of Students (See pages 12-15 for details).

The link to the complete policy and implications can be found at:
http://www.purdue.edu/studentregulations/regulations_procedures/classes.html

All lectures will start promptly at 2:30 and end at 3:20. Students must arrive at the lecture hall prior to the start time and are not allowed to pack up before the end time. Failures to do so may affect negatively your participation grade.

Attendance will be taken for laboratory sessions. It is not possible to make-up a missed lab. A student who fails to complete more than three labs will automatically earn a grade of "F". Completion of an experiment includes completion and timely submission of a satisfactory laboratory report. Please silence all cell phones and pagers before coming to lectures and laboratories. See below for the detailed grading policy for lab absences.

Note that PUSH does not provide students with “excuse” notes. Unless the student is acutely ill, there is nothing for PUSH to verify. Instead, students are responsible to communicate with the course instructor as soon as possible, in the event of an illness, so that we can work together for a positive solution to your absence.

Students with excessive absences will also be reported to Elementary Education-Department of Curriculum and Instruction. Teacher Education Council, Form D-2 dealing with attendance may be filed with Elementary Education.

Laboratory Attendance
Lab attendance is required since CHM 20000 is a laboratory course. There are no make-up labs or excused absences, except those covered by the GAPS or MAPS policies (See pages 12-15).

You are required to complete at least 9 of the 12 scheduled lab projects to pass the course. If you fail to complete or miss more than three lab projects, an automatic grade of “F” will be assigned for the course at the end of the semester.

A failure to complete (zero score) will be assigned in the following cases:
- being absent for any reason (except GAPS/MAPS approved absences)
- being dismissed from lab for an incomplete Safety Certification (score <20/25)
- being dismissed from lab for safety violations, including dress and goggle infractions
- arriving more than 10 minutes late
- inadequate preparation that hinders lab participation
- not contributing constructively to the group’s work in lab
• failure to submit a lab report
• not participating in preparation of the lab report

You must complete the online safety certification found on Blackboard with a score of 20/25 or better by **11:59 PM on Tuesday January 17**. You must confirm your score in the Blackboard grade center. You will receive a zero for each lab you miss due to an incomplete safety certification.

**Lab Preparation**

**Before each lab, read the experiment to help you prepare.** Complete the pre-lab exercises and preview an experimental procedure in your lab manual. Once a semester, you will present about lab activities with your lab partner. Schedule and prepare for the presentation. Arrive on time, properly dressed, and prepared for lab work. If you arrive at lab more than 10 minutes late or improperly dressed, you will be asked to leave the lab and will receive a score of zero for that week’s lab and a quiz if it is scheduled on that day.

**Lab Absences**

CHM 20000 is a laboratory course and the professors have determined that participation in and completion of a minimum of ten (10) labs throughout this semester will be required to pass the course. Absences or fail-to-complete labs will be graded as follows at the end of the semester since we are not evaluating reasons for absences.

1st absence or fail-to-complete lab
   score of zero, score dropped at end-of-semester

2nd absence or fail-to-complete lab
   score of zero, zero will count in your total points

3rd absence or fail-to-complete lab
   score of zero; zero will count in your total points **and** your final grade will be dropped by one letter grade at the end of the semester

4th absence or fail-to-complete lab
   grade of “F” in CHM 20000

Note: If you are dismissed from lab at any time during a lab because of a safety violation (e.g., not wearing safety goggles as directed, wearing improper clothing or shoes for the laboratory work environment, disposing of hazardous waste in an improper manner) then that lab will count as an absence or fail-to-complete lab and a score of zero will be recorded and handled as described above.

**Before you come to the lab on January 18,**

- Purchase required materials.
- Read all the information in this course packet.
- Read the relevant Reading Assignments and Learning Objectives (on Blackboard).
- Complete the safety certification available on the course Blackboard page with a score of at least 20/25 by **11:59 PM on Tuesday January 17**. You must complete your safety certification **before you can work in lab.**
Evaluation of Your Learning

Exams (2 mid-terms at 100 pts each and 1 final at 150 pts) ........................................ 350 pts
Lab Activities (12 at 30 pts each) .................................................................................. 360 pts
Quizzes ............................................................................................................................ 30 pts
Homework ....................................................................................................................... 30 pts
Lab presentation ............................................................................................................ 30 pts
CHEM Project ................................................................................................................ 100 pts
Class participation ........................................................................................................ 100 pts
TOTAL POSSIBLE SCORE .......................................................................................... 1000 pts
Extra credits .................................................................................................................. 30 pts

This approach to grading means that the grade you get in this course depends primarily on your own effort and performance. It also ensures that all students who do well in the course will get good grades. After the Final Exam your course grade will be based on the following guaranteed percent of total points for the semester. Lower cutoff ranges may be used if the professor considers it appropriate.

A 90.0% - 100%
B 80.0% - 89.9%
C 70.0% - 79.9%
D 60.0% - 69.9%
F 0.0% - 59.9%

Exams

Exams are mandatory! There will be two 90-minute evening exams in this course (100 points each). The Final Exam is a 2-hour comprehensive exam (150 points). The time and place will be announced mid-semester. Wait until you know the date of the final exam before you make travel plans that might conflict with the exam. Final exams will NOT be rescheduled to accommodate your travel plans. The exams will be multiple choice and short answer questions that will probe your general knowledge and understanding of the ideas that have been presented and will test your ability to apply learned knowledge to new situations that you may not have considered previously.

Exam I: Tuesday, Feb. 14 8:00 – 9:30 p.m.  GRIS 103
Exam II: Tuesday, Mar. 28 8:00 – 9:30 p.m. GRIS 103
Final Exam: TBD

Attendance at exams is required. There are NO make-up exams and absences are not excused except those covered by the GAPS/MAPS policies (See pages 12-15).

If you have a direct conflict with another exam, class, or required university activity, contact the General Chemistry office (BRWN 1144) at least one week before the conflict. You will be asked to provide written verification of the conflict. If an emergency occurs, contact the General Chemistry office (BRWN 1144) as soon as possible.

You should arrive at least 15 minutes before the exam start time. If you arrive more than 15 minutes after the exam start time, you will not be allowed to take the exam. Take your PU ID, an appropriate (non-graphing) calculator, and two lead pencils with you to the exam. You may not share a calculator with another student.

University policy on Final Exams states: “Students scheduled for more than two (final) examinations in one calendar day are entitled to reschedule and examination in excess of two. It is the responsibility of the student to make necessary arrangements before the last week of regularly scheduled classes.”
Laboratory Activities

Safety: We take your safety and that of your classmates seriously. You should too. You can be dismissed from lab and receive no credit for attendance if you appear to be a danger to yourself or to your classmates or if you violate safety regulations presented on the page in this packet titled "Safety Policies for Chemistry Labs".

Each lab period you will engage in a laboratory activity designed to encourage your understanding of that week’s material (30 points each). Laboratory work is designed to provide you with hands-on experiences of doing chemistry, and to assist you in making connections between the chemical concepts and what is observed in lab, and in everyday life. Many of the investigations are appropriate for the instruction of elementary school children. It is hoped that by performing these activities, you will be enabled to more effectively use them in your own teaching. All activities will be completed and submitted for evaluation within the laboratory period. The laboratory period is 2 hours and 50 minutes in length.

You should review the experimental purposes and procedures for the investigations to be performed that day prior to coming to lab. Some labs have pre-lab activities that primarily require you to summarize your current understanding of the topic. The purpose of this is to bring to mind what you currently know about the topic and to identify aspects you are deficient in. It is not about getting the correct answer! Just take the time to truly reflect on the topic and be honest about what you know and don't know about the topic. A laboratory schedule of the experiments that will be performed each week is located in the course packet and on the course Blackboard site.

If you are more than 10 minutes late to lab you will not be allowed to stay in lab and you will be given a grade of zero for that laboratory assignment. If you arrive to lab inappropriately dressed, you will also be asked to leave the lab and you will be given a grade of zero for that laboratory assignment.

Lab activities will be graded based on your lab reports. Complete the lab report appropriately:

- Use pen and write neatly.
- Label graphs and tables.
- Use the data your team collected for the calculations and analysis unless asked otherwise.
- Use correct units of measurement and significant figures.
- Ensure results and conclusions are consistent with your data and observations.

Note: Lab report grading is not solely based on the correctness of your response. Some questions, in particular if you are asked to “think,” “provide an explanation,” “provide a hypothesis,” or “reason,” do not presume one right answer. It is to encourage you to reason about experiments and observations you made. For those questions, your grading will be based on how solid your reasoning is, how detailed and specific your explanation is, how well you support your answer with data and logic.

In the lab, you will be work in team. You must endeavor to work as an effective member of a team. Lab reports are due before leaving lab the day lab work is completed and the lab is closed, that is 10:20 AM or 5:40 PM. Lab reports submitted up to 24 hours late are worth 50%. Lab reports submitted after 24 hours are worth no (zero) credit. Graded lab reports will be returned one week after they are submitted. It is suggested that all lab partners review the graded report, as exams will likely include lab-related questions.

Quizzes

Throughout the semester, you will have several quizzes in laboratories. The quizzes serve to provide feedback for you to evaluate your current level of understanding of the concepts. The quizzes also serve as incentive for you to keep current with the material presented. NO MAKE-UP QUIZZES WILL BE GIVEN.
Homework
Homework has a very specific purpose: to give you, the learner, first-hand experience in applying the concepts to some other situations in which contents you have learned in class can be used and to supplement course content that cannot be covered in lecture due to time constraints. The assignment, along with appropriate due dates, will be posted on Blackboard. Consult the course calendar (Pages 3-4) for the exact dates of homework assignment. **You are responsible for checking on the homework schedule. All homework assignments are due midnight on the day that they are assigned. NO LATE HOMEWORK ASSIGNMENTS WILL BE ACCEPTED.** You may e-mail your TA your assignment if you are going to miss class.

Lab Presentations
In each lab session, a group will volunteer to present about the lab activity. Each group will prepare one Powerpoint presentation for 5-10 minutes that addresses following aspects of the day’s lab:
- What are the overarching goals of the lab?
- How are multiple lab activities connected to each other?
- What are key questions to think about throughout the lab?
- How do the lab activities connect to the week’s reading?
On the first day of lab, each group will sign up for the lab presentation. To ensure a quality presentation, all groups are highly encouraged to prepare for the presentation early on and discuss it with the TA.

CHEM Project
In this project, you and your classmates (up to three people in each group) will create multimodal texts about your selected topic. Multimodal text is any form of presentations that contain more than one “modes” –written texts, visual representation, videos, music, etc. It includes, but is not limited to, a short storybook with visual representations, comics, performance, song, videos etc. If you decide to create a performance or song, you will video-record your performance and submit the video footage. For more details, visit [http://creatingmultimodaltexts.com/](http://creatingmultimodaltexts.com/). **Your group members must be different from the lab partner.** Each group will choose a topic covered in class, create multimodal texts to present the selected topic. By April 12, your group will submit:
- A brief synopsis of your multimodal texts that describes (less than one page, single-spaced)
  - Target topics
  - What “modes” of communication are incorporated
  - Target audience of your project
- Multimodal texts that may be, but are not limited to
  - 3-5 minute long video footage
  - 3-5 pages long storybook or comics
To determine an appropriate format and length of your project, you may consult Dr. Ryu. Each member in each group will receive the same grade as the other members. It is your responsibility that all members make equal contribution to the project.

Readings
It is a huge problem that many students in K-16 grade levels do not like to read in content areas, in particular in science. Throughout the semester, reading materials will be assigned each week. All reading materials are 3-5 pages long and written in non-technical languages targeting middle to high school students. It will not be checked whether if you read each material or not. **It is your responsibility to read the materials. Content in all reading materials will be drawn upon in lectures, labs, homework, quizzes, and exams.** You are encouraged to post a short summary of reading each week (a guideline will be posted on the Blackboard) and will earn participation points by doing so.

Class Participation and Participation Grade
Your active participation is a vital aspect of this course. You are required to
- Arrive at the lecture hall and laboratories on time and stay focused until the very end of the session. Note that dismissal time for the labs may be earlier than the scheduled time (10:20 or
5:40) and vary in each week and different lab sections. **No complaints on the lab dismissal time will be tolerated.**

- Be ready to participate cognitively and verbally in various classroom learning activities, such as class discussions, group discussions, presentations, and i>clicker, in the lectures and labs, as well as in the Blackboard activities. To be ready for class participation, you should read assigned materials, review lecture notes, and complete homework assignments and pre-labs. In class, your role is not a passive observer or absorber of knowledge, but an active constructor of knowledge. You should actively think about given problems, share your ideas, listen to others’ ideas, and refine your ideas. From this process, you will reach understandings that make sense to you. **When we have class discussions, it does not matter if you have correct ideas or not. What matters most is how actively you think, share, and develop ideas and understanding.** In lectures, we will use i>clickers to gauge your ideas and understandings. Class participation also includes your active participation in the blackboard, such as participating in discussion forum and frequent access to the course materials posted in the Blackboard.

- Contribute to creation of positive learning environments. Every individual contributes to the learning environment of the course. You must exhibit professional attitude and behavior, which includes positive attitude to learning, respect for the course instructor, TAs, and other students, and support for each other’s learning. **Your disruptive behavior and attitude can lead to lowering your participation points.**

For the final grade, 100 pts are allotted to participation. It will be calculated based on the following grading scheme:

- Answering iClicker question: 1 pt per each question
- Answering online discussion questions and responding to other’s response: 3 pts and 1 pt respectively per each post
- Visiting the course Blackboard: 1 pts per one hour spent in the blackboard (In previous semesters, students spent 8-10 hours on average throughout a semester)
- Posting reading summary: 3 pts per each post
- Sharing publicly your ideas in lecture and labs: 1 pts per each session
- Other miscellaneous participation opportunities

If you do EVERYTHING that you can do, your score can potentially add up to 130 points or so. However, it is understood that you cannot do everything. If you do not earn enough points from some areas, try to make up points through other ways of class participation.

**Extra Credits**

There will be several opportunities to earn extra credits throughout the semester, but no later than the final. Those opportunities will include, but not be limited to, participating in interviews, submitting short papers, giving presentations, etc. Opportunities and guidelines will be announced in the lecture and/or lab. If you are interested, take the opportunities early on and don’t wait until it’s too late.

**Feedback on Learning**

Throughout the semester, you will receive feedback on your learning as a form of grades in homework, quizzes, lab reports, and midterm exams. All these feedback are to help you learn in the course beyond simply monitoring the final grades. **You are responsible for reading comments provided by the course instructor and TAs rather than checking only the grades.** If you have any question on grading, you can submit a request to review your grades. Any request other than addition errors must be submitted in legible writing along with the graded material. You should wait at least 24 hours after receiving a grade before a complaint is made. After the 24 hours has passed, you will write to Dr. Ryu a short explanation that shows as concisely as possible why you think the grading is inaccurate. Dr. Ryu will take action on your appeal, and a reply will be made in writing. **Direct, person-to-person pleading with the instructor or teaching assistants WILL NOT be allowed. NO negotiation of grades will be tolerated.** Your materials (except for exams) must be completed in pen to be eligible for a regrade.

**Saving Graded Materials**
Save all your quizzes, exams, laboratory reports and your laboratory notebook until your final grade for the course is given.

THERE ARE NO CHM 20000 LAB OR EXAM MAKE-UPS!
THERE IS NO MAKE-UP WORK FOR ANYTHING!
NO LATE WORK WILL BE ACCEPTED!

Lab Safety
Students’ safety in the laboratory is a priority and everyone is required to follow the following lab safety regulations, Failure to comply with any of the safety regulations will result in being sent home from lab with a score of zero, which counts as a lab absence.

- Proper dress (clothing and shoes) is required. Your clothing must cover you from your neck (collarbone) to your ankles when sitting, standing or reaching. Your feet must be completely covered by your shoes. Your best option for chemistry lab attire is a t-shirt, jeans without holes, and sneakers with socks. **If you attend lab in unacceptable attire, you will be sent home and will receive a zero for the lab.** Unacceptable clothing includes, but is not limited to: sleeveless or low-cut (i.e. below the collar bone) tops, pants that have holes or rips of any size, cropped pants, shorts, short skirts, open-toed and/or open-heeled shoes, sandals (with or without socks), ballet flats, or slippers. **In short, your skin must be covered from your collarbone down to your feet.**
- Goggles are required at all times in the laboratory, including during report-writing and lab check-out. If you are in lab and your goggles are not covering your eyes, you will be sent home and will receive a zero for the lab report and lab quiz. This includes the period of time during which you are writing the lab report.
- Wear gloves when specified.

- Food and beverages (including water bottles) are never allowed in the labs.
- All backpacks, coats and other personal belongings must be placed on the coat rack.
- If your hair is longer than shoulder length you must tie it behind your head.
- Contact lens wearers are encouraged to wear glasses in the laboratory.
Follow your instructor’s guidance on appropriate handling of hazardous materials and disposal of chemical waste.

Promptly clean up spills and tidy the laboratory before leaving.

Cell phones are not permitted in the laboratory (even if they are being used as calculators). The use of a cell phone for any reason, may result in being dismissed from the laboratory and result in a zero on that lab. For extenuating circumstances, please check with your TA before lab starts.

You will be required to follow the instructions printed in your lab manual or given to you by the teaching assistant for appropriate handling of hazardous materials.

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**Administrative Policies**

**Emergencies**

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. Relevant changes to this course will be posted on the course Blackboard site or can be obtained by contacting the instructors or TAs via email or the General Chemistry office via phone at 765-494-5250.

You are expected to read your @purdue.edu email on a frequent basis. In the case of a major campus emergency involving a shelter-in-place, all laboratory experiments will be halted while students shelter in lab. Students’ lab grades will not be penalized in this situation.

**EMERGENCY NOTIFICATION PROCEDURES** are based on a simple concept – if you hear a fire alarm inside, proceed outside. If you hear a siren outside, proceed inside.

- **Indoor Fire Alarms** mean to stop class or research and immediately **evacuate** the building.
  - Proceed to your Emergency Assembly Area away from building doors. **Remain outside** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

- **All Hazards Outdoor Emergency Warning Sirens** mean to immediately seek shelter (Shelter in Place) in a safe location within the closest building.
  - “Shelter in place” means seeking immediate shelter inside a building or University residence. This course of action may need to be taken during a tornado, a civil disturbance including a shooting or release of hazardous materials in the outside air. Once safely inside, find out more details about the emergency*. **Remain in place** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

*In both cases, you should seek additional clarifying information by all means possible...Purdue Emergency Status page, text message, email alert, TV, radio, etc....review the Purdue Emergency Warning Notification System multi-communication layers at http://www.purdue.edu/ehps/emergency_preparedness/warning-system.html

**EMERGENCY RESPONSE PROCEDURES:**

- Review the **Emergency Procedures Guidelines**
  [https://www.purdue.edu/emergency_preparedness/flipchart/index.html](https://www.purdue.edu/emergency_preparedness/flipchart/index.html)

- Review the **Building Emergency Plan**  (available on the Emergency Preparedness website or from the building deputy) for:
  - evacuation routes, exit points, and emergency assembly area
  - when and how to evacuate the building.
  - shelter in place procedures and locations
EMERGENCY PREPAREDNESS AWARENESS VIDEOS

- "Shots Fired on Campus: When Lightning Strikes," is a 20-minute active shooter awareness video that illustrates what to look for and how to prepare and react to this type of incident. See: http://www.purdue.edu/securePurdue/news/2010/emergency-preparedness-shots-fired-on-campus-video.cfm (Link is also located on the EP website)

MORE INFORMATION
Reference the Emergency Preparedness web site for additional information: https://www.purdue.edu/ehps/emergency_preparedness/

Academic Dishonesty
Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, Student Regulations] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972] For further information, please see Purdue's student guide for academic integrity: https://www.purdue.edu/odos/academic-integrity/ Academic dishonesty will result in penalties to those who are involved in the dishonest actions. The penalties may include point deduction or failure in the course.

Course Materials
As used in this paragraph, the term "instructor" is defined as the individual who authored the material being presented as part of the course. Among the materials that may be protected by copyright law are the lectures, notes, and other material presented in class or as part of the course. Always assume the materials presented by an instructor are protected by copyright unless the instructor has stated otherwise. Students enrolled in, and authorized visitors to, Purdue University courses are permitted to take notes, which they may use for individual/group study or for other non-commercial purposes reasonably arising from enrollment in the course or the University generally.

Notes taken in class are, however, generally considered to be "derivative works" of the instructor's presentations and materials, and they are thus subject to the instructor's copyright in such presentations and materials. No individual is permitted to sell or otherwise barter notes, either to other students or to any commercial concern, for a course without the express written permission of the course instructor. To obtain permission to sell or barter notes, the individual wishing to sell or barter the notes must be registered in the course or must be an approved visitor to the class. Course instructors may choose to grant or not grant such permission at their own discretion, and may require a review of the notes prior to their being sold or bartered. If they do grant such permission, they may revoke it at any time, if they so choose.

Use of Copyrighted Materials
Students are expected, within the context of the Regulations Governing Student Conduct and other applicable University policies, to act responsibly and ethically by applying the appropriate exception under the Copyright Act to the use of copyrighted works in their activities and studies. The University does not assume legal responsibility for violations of copyright law by students who are not employees of the University.

A Copyrightable Work created by any person subject to this policy primarily to express and preserve scholarship as evidence of academic advancement or academic accomplishment. Such works may include, but
are not limited to, scholarly publications, journal articles, research bulletins, monographs, books, plays, poems, musical compositions and other works of artistic imagination, and works of students created in the course of their education, such as exams, projects, theses or dissertations, papers and articles. For further information please see the University Regulations on policies: http://www.purdue.edu/policies/academic-research-affairs/ia3.html

**Disability Accommodations**

Purdue University is committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, Purdue University seeks to develop and nurture its diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas and enriches campus life.

Purdue University views, evaluates and treats all persons in any university-related activity or circumstance in which they may be involved solely as individuals on the basis of their own personal abilities, qualifications and other relevant characteristics.

Purdue University does not condone and will not tolerate Discrimination against any individual on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, disability, status as a veteran, marital status, parental status, sexual orientation, gender identity or gender expression. Purdue University promulgates policies and programs to ensure that all persons have equal access to its employment opportunities and educational programs, services and activities. The principal objective of this policy is to provide fair and consistent treatment for all students and employees of the University. Purdue is committed to increasing the recruitment, selection and promotion of faculty and staff at the University who are racial or ethnic minorities, women, persons with disabilities and veterans. The University also is committed to policies and programs that increase the diversity of the student body.

If you require accommodations to access course activities or materials, the accommodations must be described and approved by the Disability Resource Center, Young Hall Room 830, 302 Wood Street, 494-1247, www.purdue.edu/drc. To implement accommodations you must follow the instructions in the letter prepared by the Disability Resource Center. **Take a copy of this letter to the Mrs. Reynolds in BRWN 1144 within the first three (3) weeks of the semester or within one week of the date of the letter to discuss your accommodations.** Timely notification is critical for timely implementation.

**Nondiscrimination**

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Executive Memorandum No. D-1, which provides specific contractual rights and remedies. Any student who believes they have been discriminated against may visit www.purdue.edu/report-hate to submit a complaint to the Office of Institutional Equity. Information may be reported anonymously. Please see Purdue’s nondiscrimination statement: [http://www.purdue.edu/purdue/ea_eou_statement.html](http://www.purdue.edu/purdue/ea_eou_statement.html)
**Grief Absence Policy for Students (GAPS)**
Purdue University recognizes that a time of bereavement is very difficult for a student. The University therefore provides the following rights to students facing the loss of a family member through the Grief Absence Policy for Students (GAPS). GAPS Policy: Students will be excused for funeral leave and given the opportunity to earn equivalent credit and to demonstrate evidence of meeting the learning outcomes for misses assignments or assessments in the event of the death of a member of the student’s family.

If you experience the death of a family member or close friend, notify the Office of the Dean of Students at 765-494-1747. Scores for any missed assignments under a verified GAPS absence will be prorated (assigned a score based on your average and the class average). See the Course Coordinator for more information or [http://www.purdue.edu/studentregulations/regulations_procedures/classes.html](http://www.purdue.edu/studentregulations/regulations_procedures/classes.html)

**Military Absence Policy for Students (MAPS)**
If you are required to complete mandatory military service, notify the Office of the Dean of Students (ODOS) at 765-494-1747 to request that a notice of the leave be sent to instructors. See the Course Coordinator for more information.

**Violent Behavior Policy**
Purdue University is committed to providing a safe and secure campus environment for members of the university community. Purdue strives to create an educational environment for students and a work environment for employees that promote educational and career goals. Violent Behavior impedes such goals. Therefore, Violent Behavior is prohibited in or on any University Facility or while participating in any university activity. See the University's website for additional information: [http://www.purdue.edu/policies/facilities-safety/iva3.html](http://www.purdue.edu/policies/facilities-safety/iva3.html)

**DROPPING A CHEMISTRY COURSE/CHECK-OUT**
A. Dropping a course: If a student drops a chemistry course after having checked into a locker drawer, it is the student's responsibility to immediately follow check-out procedures.
B. Check-out: Check-out procedures are required of every student on the last day of lab for each freshman chemistry course. Failure to check-out at the designated time will result in (1) a minimum fee of $45 (2) a forfeiture of the student's right to determine the acceptability of all locker drawer equipment and (3) your lock will be cut.

**Changing Sections/Adding/Dropping**

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<thead>
<tr>
<th>UNIVERSITY DEADLINES – Spring 2017</th>
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<tr>
<td><strong>Mon. Jan 23:</strong></td>
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<td><strong>Mon. Feb 6:</strong></td>
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<td><strong>Fri. Mar 10:</strong></td>
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**Late Registration**  If you register late, notify the Course Coordinator, no later than date to see about the possibility of making up missed assignments.

**Lab Drawer Check-Out**  If you drop CHM 20000 after having checked into a lab drawer, it is your responsibility to check-out of your assigned drawer during your scheduled lab period. Failure to check-out of lab will result in your padlock being cut, a $45 fee, and forfeiture of the right to determine the acceptability of all locker drawer equipment.
If you change sections after you check into a locker drawer, you must check out of your old locker drawer before checking into a drawer in your new section.

**DISCLAIMER** This syllabus is subject to change due to unexpected events.