

## CHE 119: Honors General Chemistry Lecture, Spring 2017

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### Instructor:

Associate Professor Mathew M. Maye  
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### Course Description:

This course builds upon on the fundamental chemical principles learned in the first semester course (CHE 109) and introduces chemical kinetics and thermodynamics, intermolecular forces, chemical equilibrium, acid-base chemistry, electrochemistry, and solid state materials.

**Lectures: Monday, Wednesday, and Friday 10:35 am – 11:30 am @ CST 1-019**

### Teaching Assistant: Lili Karam

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**Undergraduate Chemistry Secretary:** Elizabeth Molloy, 1-019, CST, [eemolloy@syr.edu](mailto:eemolloy@syr.edu)

### Textbook and Supporting Materials:

- Chemistry (9th ed). (Zumdahl & Zumdahl, Brooks/Cole Cengage Learning 2014)
- Text available on reserve at Sci-Tech Library

**Lecture Notes** will be uploaded to Blackboard after lecture. Please note, the blackboard notes may not have all the problems worked out on the whiteboard, thus attendance is recommended.

### Your basic responsibilities include:

- **Attend lectures** and **read the assigned** material.
- Study your lecture notes and assigned text reading.
- Participate in class.
- Do assigned homework on time and review them before exams.
- **BRING A CALCULATOR TO ALL LECTURES AND EXAMS.**
- **Take all of the examinations.**

**NOTE:** At this time, CHE 119 (*Lecture*) has no connection to CHE 139 (*Laboratory*) course.

**Lecture Etiquette** includes the silencing of cell phones, and typing/tapping at your keyboards in a quiet manner. I do not mind you taking notes on computer, typing, or texting as long as it does not disturb your neighbors or me. Any disruptive behavior will not be tolerated.

**Calculators** must be cleared of memory before an exam or quiz. Prof. Maye and the TA reserve the right to inspect calculators. *No cell phone calculators are permitted.* A basic scientific calculator is therefore recommended. *\*\*Please practice with your calculator before the exam to ensure you, and it, are working properly.*

**Advising** will be provided via the “Orange SUccess” program, which will aid communication on grades and trajectory throughout your courses. However, since this is a small class, please use Prof. Maye and TA for additional advising help.

**Disability-Related Issues**, or any other concerns should be discussed with Prof. Maye as soon as possible to arrange for appropriate accommodations. Students requiring special accommodations **MUST** register with the Office of Disability Services (804 University Avenue Room 309, Phone: (315) 443-4498; TDD: (315) 443-1371, E-Mail: [odssched@syr.edu](mailto:odssched@syr.edu)).

## GRADING

**Exams** will cover both material covered in lecture and the assigned text readings and homework. Many test questions will be similar to problems worked in lecture or assigned homework exercises. Questions discussed in lecture may or may not be present in our text. Lecture materials from student led 'participation lectures' will not be on the exams. **\*Please note, no exams will be dropped.**

Like a sports team, you will perform on exams like you practice. The more you practice, the harder you practice, the better you will play.

Exams #1-3 are given during the regular class time period, as shown below:

<b>Exam 1:</b> Friday, Feb. 24	(in class)
<b>Exam 2:</b> Friday, Mar. 31	(in class)
<b>Exam 3:</b> Monday, May 1	(in class)

**Final Grade Determination** is based on the criteria below. "Curving" will generally not be applied, but Prof. Maye reserves the right to do so. In such a case, scores will only be curved up, and will not impact your letter grade in a negative way.

Exams 1-3 (20% each)	=	60%
Quizzes	=	15%
Homework	=	15%
Attendance/Participation	=	10%
<b>Course Total</b>	=	<b>100%</b>

**Absolute Academic Honesty** is expected of all students. Any incidence of academic dishonesty, as defined by the Syracuse University Academic Integrity Policy (<http://academicintegrity.syr.edu>), will result in both course sanctions and formal notification of the College of Arts & Sciences. *\*In this course, students are allowed and strongly encouraged to study together, but exams, quizzes and homework must represent the work of the individual student.*

**Attendance and Participation** in student led Lectures ('participation lectures') are worth 10%, which is considerable. On Fridays (with the exception of exam days), we will have "participation lectures," during which two groups of students will introduce their own lectures to the class. Each group will cover two sections from a chapter not covered by Prof. Maye, meaning we should cover four sections total in each participation lecture (about 20 minutes per group). This is reflected in the lecture schedule below. Students will be randomly placed into groups, and will present assigned material to the rest of the class via PowerPoint and problems worked out on the board. Students should share drafts of presentations & notes with Prof. Maye before the final presentation.

**Absences** due to religious holidays or official Syracuse University commitments (e.g. athletics) will be excused. You must notify Prof. Maye **in writing** at least one week before the absence; an opportunity to make up work will be provided.

**Medical absences** will be excused based on **written documentation** from the Health Center or a health-care provider. **NO VERBAL EXCUSES WILL BE ACCEPTED.** The medical document must specifically indicate that you were unable to attend class/recitation and will be verified.

## Tentative Class Schedule

<i>** Daily schedule approximate, and may be adjusted due to pace of lectures</i>			
#	Date	Topic	Chapter
1	WED. Jan. 18	Syllabus/Course Overview, Introduction to Rates	12
2	FRI. Jan. 20	Reaction rates, Concentration and Rate	12.1-12.2
3	MON. Jan. 23	Concentration Vs. Time	12.3
4	WED. Jan. 25	Temperature & Rate	12.4
5	<b>FRI. Jan. 27</b>	<b>Participation Lecture</b>	<b>10.1-10.4</b>
6	MON. Jan. 30	Reaction Mechanisms, Catalysis	12.5-12.7
7	WED. Feb. 1	Chemical Equilibrium	13.1
8	<b>FRI. Feb. 3</b>	<b>Participation Lecture &amp; Quiz</b>	<b>10.5-10.9</b>
9	MON. Feb. 6	Equilibrium Constants	13.2
10	WED. Feb. 8	Using Equilibrium Constants	13.3-13.5
11	<b>FRI. Feb. 10</b>	<b>Participation Lecture</b>	<b>11.1-11.4</b>
12	MON. Feb. 13	Le Chatelier's Principle	13.7
13	WED. Feb. 15	Le Chatelier's Principle, Problem Solving	13.7
14	<b>FRI. Feb. 17</b>	<b>Participation Lecture &amp; Quiz</b>	<b>11.5-11.8</b>
15	MON. Feb. 20	Acids and Bases, pH	14.1-14.3
16	WED. Feb. 22	<i>Catch up and review for Exam #1</i>	
17	<b>FRI. Feb. 24</b>	<b>Exam #1 – Chapters 12, 13</b>	
18	MON. Feb. 27	Strong/Weak Acids and Bases	14.4-14.7
19	WED. Mar. 1	Acid/Base Salt Solutions	14.8-14.10
20	<b>FRI. Mar. 3</b>	<b>Participation Lecture &amp; Quiz</b>	<b>21.1-21.4</b>
21	MON. Mar. 6	Lewis Acids & Bases	14.11
22	WED. Mar. 8	Common Ion Effect, Buffers	15.1, 15.2
23	<b>FRI. Mar. 10</b>	<b>Participation Lecture</b>	<b>21.5-21.8</b>
-	<b>MON. Mar. 13</b>	<i>SPRING BREAK (NO CLASS)</i>	
-	<b>WED. Mar. 15</b>	<i>SPRING BREAK (NO CLASS)</i>	
-	<b>FRI. Mar. 17</b>	<i>SPRING BREAK (NO CLASS)</i>	
24	MON. Mar. 20	Titrations, pH curves	15.4
25	WED. Mar. 22	Solubility Equilibria	16.1
26	<b>FRI. Mar. 24</b>	<b>Participation Lecture &amp; Quiz</b>	<b>TBA</b>
27	MON. Mar. 27	Precipitation and Qualitative Analysis, Complex Ions	16.2, 16.3
28	WED. Mar. 29	<i>Catch up and review for Exam #2</i>	
29	FRI. Mar. 31	<b>Exam # 2 – Chapters 14, 15, 16</b>	
30	MON. Apr. 3	Intro to Thermodynamics	17
31	WED. Apr. 5	1 <sup>st</sup> , 2 <sup>nd</sup> , and 3 <sup>rd</sup> Laws of Thermodynamics	17.2-17.3
32	<b>FRI. Apr. 7</b>	<b>Participation Lecture &amp; Quiz</b>	<b>TBA</b>
33	MON. Apr. 10	Entropy and Free Energy	17.4
34	WED. Apr. 12	Free Energy and Temperature/Equilibrium Constants	17.6-17.8
35	<b>FRI. Apr. 14</b>	<b>Participation Lecture</b>	<b>TBA</b>
36	MON. Apr. 17	Thermodynamics Problem Solving	
37	WED. Apr. 19	Electrochemistry, Oxidation/Reduction	18.1
38	<b>FRI. Apr. 21</b>	<b>Participation Lecture &amp; Quiz</b>	<b>TBA</b>
39	MON. Apr. 24	Balanced Equations, Voltaic Cells	18.2-18.3
40	WED. Apr. 26	Electrochemistry Problem Solving	
41	FRI. Apr. 28	<i>Catch up and review for Exam #3</i>	
42	<b>MON. May 1</b>	<b>Exam #3 – Chapters 17, 18</b>	

## HOMEWORK

**All homework** must be submitted in class on the due date (every Monday, except the Monday **after** an exam), to be graded and handed back for studying purposes. *The problems with an asterisk (\*) indicate problems that will be handed in*, while the others are recommended for your own self-study. **Late problem sets will not be accepted.**

Due Date	Chapter	Problems
MON. Jan. 30	12	26, 30*, 34*, 38*, 46, 50*, 56, 60, 64, 66
MON. Feb. 6	13	24, 26*, 34, 38*, 40, 56*, 64, 66, 68, 72*
MON. Feb. 13	13	78*, 80, 82, 86*, 90*, 94*, 96, 100, 104, 114
MON. Feb. 20	14	36, 38, 44, 46*, 48*, 62*, 66*, 70, 78, 80
MON. Feb. 27	<b>No Homework</b>	-
MON. Mar. 6	14	84*, 86, 92*, 102*, 106, 120*, 130, 136, 138, 142
MON. Mar. 13	<b>Spring Break</b>	-
MON. Mar. 20	15	20, 22, 38*, 50, 56, 58*, 68*, 88*, 90, 94
MON. Mar. 27	16	20, 24*, 28*, 30*, 36, 46, 54, 56, 68*, 74
MON. Apr. 3	<b>No Homework</b>	-
MON. Apr. 10	17	26, 34*, 36, 40, 42, 48*, 54*, 58*, 62, 64
MON. Apr. 17	17	68, 70*, 72*, 74*, 76, 78, 82, 86*, 90, 94
MON. Apr. 24	18	30*, 32*, 34, 42, 46*, 54, 62, 78*, 82, 88

### Schedule for Participation Lectures

Date	Presenting Group	Topics (Chapter and Section)
FRI. Jan. 27	Group 1	10.1, 10.2
FRI. Jan. 27	Group 2	10.3, 10.4
FRI. Feb. 3	Group 3	10.5, 10.6
FRI. Feb. 3	Group 4	10.7, 10.8
FRI. Feb. 10	Group 5	11.1, 11.2
FRI. Feb. 10	Group 1	11.3, 11.4
FRI. Feb. 17	Group 2	11.5, 11.6
FRI. Feb. 17	Group 3	11.7, 11.8
<b>FRI. Feb. 24</b>	<b>EXAM #1</b>	-
FRI. Mar. 3	Group 4	21.1, 21.2
FRI. Mar. 3	Group 5	21.3, 21.4
FRI. Mar. 10	Group 1	21.5, 21.6
FRI. Mar. 10	Group 2	21.7, 21.8
<b>FRI. Mar 17</b>	<b>Spring Break</b>	-
FRI. Mar. 24	Group 3	TBA
FRI. Mar. 24	Group 4	TBA
<b>FRI. Mar. 31</b>	<b>EXAM #2</b>	-
FRI. Apr. 7	Group 5	TBA
FRI. Apr. 7	Group 1	TBA
FRI. Apr. 14	Group 2	TBA
FRI. Apr. 14	Group 3	TBA
FRI. Apr. 21	Group 4	TBA
FRI. Apr. 21	Group 5	TBA