

**Chemistry 116**  
**General Chemistry Lecture Part II**  
**Spring Semester 2008**  
**Professor Teddy (Tewodros) Asefa**

Office: CST 1-048; Lab office: CST 2-040 to 2-050; Phone: 443-3360; E-mail:  
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Office hours: Tuesday, 3:00-4:00 pm or by appointment

**Course Website:** <http://blackboard.syr.edu>  
**Course materials are posted at :** <http://blackboard.syr.edu>

**Times:** Tuesday and Thursdays 12:30 – 1:50 pm

**Class-Room:** Watson Theatre

**Credits:** 3

Chemistry Undergraduate Secretary: Carol DeGirolamo, Office: 216 Bowne Hall,  
Tel: 443-2851; E-mail: [cdegirol@syr.edu](mailto:cdegirol@syr.edu)

Any problem involving registration, scheduling, or other clerical issues are best handled by seeing the undergraduate chemistry secretary: Carol DeGirolamo in 216 Bowne Hall (Tel: 443-2851 and E-mail: [cdegirol@syr.edu](mailto:cdegirol@syr.edu)).

**Course Description/Learning Goals:** Chemistry 116 (“General Chemistry - Part II”) is a chemistry course intended for undergraduate students with majors in various science and engineering disciplines. It includes topics such as reaction rates and kinetics, chemical equilibrium, acids and bases and their equilibria, thermodynamics, solubility, intermolecular forces, the states of matter, properties of solutions and solids; colligative properties, and simple organic molecules and some simple topics from nuclear chemistry. The objectives of the course will include understanding the chemical concepts and applying them through problem solving. Consequently, students are expected to understand chemical concepts and be able to apply this understanding to solve problems in chemical processes and concepts.

**Prerequisite:** Successful completion of CHE 106, 109 or the equivalent.

**Materials:** General Chemistry, 8<sup>th</sup> Edition; D. D. Ebbing and S. D. Gammon, Houghton Mifflin Co., 2005; Student Solutions Manual and Student Technology Package. These materials are available at the Schine Center Bookstore at Syracuse University.

**Assignments and Lectures:** The materials covered in lecture will be illustrative rather than exhaustive. *You should read the materials in the text assigned **before** the lecture.* The syllabus includes assigned reading from the text and associated problems for each lecture. You will benefit most from the lectures if you read the assigned material *before* the lecture. The assigned problems are due at your recitation the week following the lecture. The assigned supplementary questions and problem will often be discussed in recitations. Working problems and the Conceptual Problems at the end of each chapter will help you understand the chemical concepts more effectively. The examinations will cover both the

assigned text and lecture materials as well as related problems whether or not they are specifically covered in lecture or not. It is, therefore, strongly suggested that you do all the recommended problems and some additional ones too.

**Recitations:** Recitations are *required* of all students and will contribute 10 % of your grade. Much of the material in this course is quantitative in nature, and recitations allow time to go over the assigned problems and discuss the lecture material in small groups. You may be surprised how many other students have the same questions you have. Remember—no question is a “stupid” question. Your TA’s are there to help you understand the material and provide problem-solving strategies. Recitations will begin the week of January 23rd. Your recitation grade will include graded homework, quizzes and attendance.

**Math intensive Tutorials:** Students who have had difficulty in basic math related problem solving and chemical problems may be enrolled in the new Math Intensive Peer Led Team Learning (PLTL) program that Professor Asefa has put together. This and about this program, announcement will be made in class around the beginning of the semester.

Number (Section)	Day	Time	Room, Building	Recitation TA
M002	Monday	8:25 - 9:20 am	BH – 125	Cole Duncan
M003	Wednesday	7:30-8:25pm	Sims - 237	Paul DeBurgomaster
M004	Tuesday	3:30 - 4:25	AG – 203	Joshua Pelcher
M005	Monday	12:45 - 1:40	BH - 110	Joshua Pelcher
M006	Wednesday	8:25-9:20am	HL - 211	Cole Duncan
M007	Wednesday	12:45- 1:40	AG – 203	Paul Pelcher
M008	Wednesday	10:35-11:30	Lyman - 320	Justin Cecnavicius
M020	Thursday	9:30 – 10:25	NCCII - 464	Justin Cecnavicius

BH = Bowne Hall; Sims – Sims Hall or Charles N. Sims Hall; AG = Archibold Gym; HL = Hall of Languages; Lyman = Lyman Hall; and NCCII = Newhouse II

**Recitation TAs, E-mails and Office Hours: These will be announced later or posted on an updated syllabus to be posted on Blackboard as soon the information is available**

**Office Hours:** Professor Teddy Asefa will be available to answer questions and students’ concerns during office hours. Professor Asefa’s office hour is: Tuesday, 3:00 – 4:00 pm. Professor Asefa’s office is in Room CST 1-048; his phone is: 443-3360; and his E-mail: tasefa@syr.edu. If you can not come at office hours, you may also call or send an email to make an appointment at a time convenient to you and then Professor Asefa will make every effort to meet you. Recitation TAs’ are also available. You are strongly encouraged to obtain any help that you may need with them as well. Plan your weekly work and quizzes ahead, so that you have time to fully benefit from the recitation sessions. Further, make sure you make

use of the TA's office hours. There are several throughout the week and you can always schedule an appointment, if you have a conflicting schedule.

You can see any TA other than your own, who are assigned as recitation TAs, and whom you will find in the TAs office during office hours.

Please be aware that your recitation TA's deal only with questions regarding CHE 116 and they may not deal with questions for CHE 117. There are separate TA's assigned for CHE 117 and you are encouraged to see the CHE 117 TAs for any question regarding CHE 117.

**Email:** The professor and the TAs can only read and answer emails that have a SU email address (*yourname@syr.edu*). All others may be filtered out due to computer virus concerns.

**Laboratory:** Students in CHE 116 should also be enrolled in the laboratory course, CHE 117 with Prof. Yan-Yeung Luk. Any questions you may have related to CHE 117 should be discussed with Prof. Luk. Professor Luk's E-mail is: *yluk@syr.edu*. Efforts have been made to coordinate the curricula of the CHE 116 and CHE 117, but the instruction, grading and administration of the two courses are completely separate.

**Attendance and Quizzes:** Quizzes will be given in recitation. Attendance will be taken in recitation. Unannounced attendance may also be taken in lectures.

**Grades and Examinations:** There will be three hour-exams given at the times below during regular class time. Students should arrive on time to take the exams. A student that arrives late (by at least 15 minutes) will not be allowed to take the exam. **There is absolutely No make-up exam no matter the circumstances are.** If a student fails to take any of the exams for a valid *documented in writing medical/emergency reason*, the average of the remaining exams will be used for the missed exam grade to calculate the final grade. There will also be no make up quizzes. In the case of missed quizzes, they will be prorated according to the above. Because an email sent is not always an email received, advance notice for absences can not ever be accepted by email and you will need to get a confirmation from Prof Asefa. You are urged to obtain a simple scientific calculator that includes log, ln and exponential functions in addition to standard arithmetic functions. To minimize absence due away athletic and other events, all hour-exams will be on Thursdays as follows:

Thursday, Feb. 12; Exam 1 (Chapter 14 and 15)

Thursday, Mar. 6; Exam 2 (Chapters 16, 17, 18)

Thursday, Apr. 17; Exam 3 (Chapters 11, 12, 19, 24)

**Hour exams will be given in Watson Hall and Gifford Auditorium. In case there will be changes, these will be announced in classes ahead of the exam date. Further announcements regarding the exams site will also be given in the future in class and on Blackboard. Typically Sections M002, M003, M004 and M005 will take the exams in Watson Hall while Sections M006, M007, M008, and M020 will take the exams in Gifford Auditorium.**

**The programs on programmable calculators will be deleted by TAs before exams.**

Students should arrive well before the exam times and before exam starts. Any student showing up 15 minutes after the exam has started may not be allowed to get into the exam room to take the exam, especially if any one student has completed his/her exam and has gone outside. No additional time will also be given to a student who started the exam late.

The Final Exam will be cumulative, with material from the chapters listed above. The final exam is on Wed. May 3 (8:00-10:00 am) at a place which will be announced at a later date.

**Grading:** The three one-hr exams will count for 60 % of the grade. The final exam will count for 30%. The quizzes and recitation will count for 10 % and it will be determined by the TA. *The TAs may have their own policy on how to grade their recitation quizzes and how to evaluate their students. Please consult this with your TA.*

**Calculation of the Final Grade:**

<b>Exam and Time</b>	<b>Percentage (%)</b>
Exam 1 (1 hr)	20
Exam 2 (1 hr)	20
Exam 3 (1 hr)	20
Final Exam (2 hr)	30
Quizzes/Recitation	10
Total	100

**Cheating, plagiarism and academic dishonesty:** Cheating will not be tolerated. You will be required to show your SU ID when you turn in your exam to compare your picture and signature. Students caught cheating will fail the assignment (gets 0 point on the specific assignment). University policy on academic dishonesty will be followed and the student(s) will be referred to the appropriate university office for disciplinary action. A letter will be sent explaining the punishment to the Associate Dean of Undergraduate Affairs of the College of Arts and Sciences and to the corresponding Dean of your own College, if you are not an A&S student. If you have further complaints regarding the failed assignment and the letter, you must contact the Associate Dean for Undergraduate Affairs of the College of Arts and Sciences directly.

Each student has to turn in his or her own quizzes and exams. Copying is considered cheating and will be treated as stated above, with 0 points given for the assignment and a letter to the Dean's offices. If you let someone copy your quiz from you, you will have 50% deduction from your grade and a letter sent to the Associate Dean of Undergraduate Affairs and persons in charge in your college describing these.

**Lecture Etiquette:** Please silence all pagers and cell phones prior to the start of lecture. If you come in late and lecture has already begun, please take a seat at the end of a row (and preferably near the back of the lecture hall) as a courtesy to those already seated. Leave your crossword puzzles, newspapers, snacks, etc., at home or in your packs. You and your fellow

students are here to learn. The class is 1 hr and 50 min long — coming and going during class is disruptive.

**Special Accommodations:** Students with any sort of disability who may need special consideration or accommodation should see Prof. Asefa immediately. If you contact the Professor later during the semester, we might not be able to accommodate your special needs. Notices of special accommodations given to professors of other courses will not reach Prof. Asefa, so you have to contact him directly.

**Student Athletes:** If you are a student athlete and you have to miss a recitation due to conflicts with game schedules, etc, you and your coach or athletic advisor have to contact Prof. Asefa *before* the date where the conflict occurs. In such cases, you will be allowed to get a score based on your average scores for the rest of the exams you have taken. There is again absolutely no make up exam given separately for any student for any missed exams, however.

**Switching Sections:** Once you have been assigned to a recitation section, you are **NOT** at any time allowed to switch sections during the semester, unless we have proof that there is a conflict with another class or an exam, or you need special accommodations. You **and** your instructor have to notify Prof. Asefa **before** the conflict occurs so that we can make arrangements.

**Punctuality:** Be sure to arrive on time during exams and quizzes. If you arrive late by at least 15 minutes, you will not be able to take the quiz and the exams. You also need to turn in your quiz/assignments as soon as you arrive. Students with any sort of disability who may need special consideration or accommodation should see Prof. Asefa immediately again.

**Blackboard.** Students enrolled in my section will have access to course materials and notices through Blackboard. You login using your NetID (Orangemail userid) and password at: <http://blackboard.syr.edu> Click on the course number (CHE 116). I will use Blackboard (and e-mail) to communicate with you concerning any changes in the syllabus, corrections to assignments, etc. Sample exams, review sheets, and lecture outlines will be posted on Blackboard.

### **Miscellaneous:**

1. Students who may need special consideration due to a physical or learning disability should see Prof. Teddy Asefa as soon as possible. No Provisions will be made if notified **after** examinations.
2. No student will be refused admission because he or she is unable to participate in a course requirement because of his or her religious holiday requirements. Again you may make provisions with Prof. Teddy Asefa **before** such absences. According to University policy, “an opportunity to make up examinations and other class work [due to religious observances] will be provided...if **the instructor is notified in writing one week before the absence.**”

- Excuses from class for medical reasons will only be given if such absences are advised by a health care provider or the Health Center based upon clinical findings and prescribed treatment recommendations. Verification must be made in writing. Such absences will be verified by the Chemistry Department staff.
- Attendance in classes is expected. Unannounced attendance checks may be taken during the semester

### **CHE 116, Approximate Course Calendar, Spring 2007: (Subject to change)**

<b>Date</b>	<b>Topic</b>	<b>Text Reading</b>	<b>Problems*</b>
Tues. Jan. 15	Syllabus; Reaction Rates	14.1 – 14.3	14.23, 35, 40
Thur. Jan. 17	Reaction Rates; Rate vs. concentration and time	14.3 – 14.4	14.27, 41, 48, 51, 51, 58
Tues. Jan. 22	Rate versus Temperature; Transition State Theory; Reaction Mechanisms	14.5 – 14.7	14.32, 69, 71
Thur. Jan. 24	Reaction Mechanisms; Catalysis	14.7 – 14.9	14.77, 79, 81, 83, 84, 87
Tues. Jan. 29	Chemical Equilibrium; Equilibrium Constant	15.1 – 15.3	15.13, 23, 27, 29ab, 31, 36
Thur. Jan. 31	Using and Calculating Equilibrium Concentrations	15.4 – 15.5	15.38, 43bc, 49bc, 51, 55
Tues. Feb. 5	Equilibrium Constant, LeChatlier's Principle	15.6 – 15.9	15.57, 61, 64, 71, 67, 75
Thur. Feb. 7	Review, Exam I		
<b>Tues. Feb. 12</b>	<b>Exam I</b>	Chapter 14 and 15	
Thur. Feb. 14	Solubility Equilibria and Precipitation	18.1 – 18.3	18.21, 24, 26, 29, 33
Tues. Feb. 19	Precipitation, Complex Ions and Qualitative Analysis	18.4 – 18.7	18.39, 47, 55, 63
Thur. Feb. 21	Acid-Base Concepts; Acid/Base Strength	16.1 – 16.6	16.23, 26, 29, 33, 35
Tues. Feb. 26	pH, Acid/Base Ionization Equilibria	16.7 – 16.8	16.41, 47, 50, 59, 62, 65
Thur. Feb. 28	Acid/Base Ionization Equilibria; Salts Common Ion Effect	17.1 – 17.5	17.27ab, 33, 37, 43, 47, 49, 54, 57, 65, 68
Tues. Mar. 4	Buffers; Titrations; Review	17.6 – 17.7 Chap 16, 18, & 17	17.25, 69, 73, 80
<b>Thur. Mar. 6</b>	<b>Exam 2</b>	Chap 16, 18, & 17	
<i>Tues. Mar. 11</i>	<i>No Class – Spring Break</i>		
<i>Thur. Mar. 13</i>	<i>No Class – Spring Break</i>		

Tues. Mar. 18	1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> Laws of Thermodynamics	19.1 – 19.3	19.25, 29 19.33, 35ad, 44b, 45, 47b
Thur. Mar. 20	Free Energy and Equilibrium Constant	19.5 – 19.6	19.53, 57, 60, 61, 63
Tues. Mar. 25	States of Matter; Properties of Liquids; Solids	11.1 – 11.5	11.55, 57, 64, 67, 71, 73
Thur. Mar. 27	Solids; Solutions and Solubility;	11.4 – 11.6 12.1 – 12.6	12.31, 33, 35, 37
Tues. Apr. 1	Colligative Properties	12.4-12.7	12.43, 51, 61, 69
Thur. Apr. 3	Organic Chemistry; Alkanes and Alkenes; Alkynes	21.1-21.2	21.29, 31, 34, 37, 39, 43, 49
Tues. Apr. 8	<i>No Class – Seminar</i>		
Thur. Apr. 10	<i>No Class – Seminar</i>	24.1 – 24.3	24.23, 24, 25a, 26b, 27a,c
Tues. Apr. 15	Aromatics and Naming Hydrocarbons Review	24.4-24.5 Review: Chap 24, 11, 19	24.33a, 35bc, 27de
<b>Thur. Apr. 17</b>	<b>Exam III</b>	Chap. 11, 19, 25	
Tues. Apr. 22	No Class – Mayfest		
Thur. Apr. 24	Semester review	All Chapters	
Tues. Apr. 29	Semester Review	All Chapters	
<i>Tentative Wed. May 1 (8:00-10:00 am)</i>	<i>Final Exam</i>	<i>All Chapters</i>	<i>To Be Announced Further in the Future</i>

**\* Please Note that:**

- The problems assigned for one week will be dealt with at Recitation Class in the following week.
- There will be quizzes the TAs will give in recitation classes with the following schedules. The Recitation Quizzes will be given on: Tues Jan. 28<sup>th</sup>, Tues. Feb. 25<sup>th</sup>, and March 31<sup>st</sup>.