

CHE 116: General Chemistry Lecture, Spring 2017

Instructor: Professor Tara Kahan

Office: 2-052 Center for Science and Technology

Office Hours: Tuesdays 10:30 – 11:30 a.m., Thursdays 2:10 – 3:10 p.m.

Course Website: <http://blackboard.syr.edu> (CHE.116.M001)

Email: tfkahan@syr.edu

Class Times and Locations

Classes: Tuesdays and Thursdays 12:30 – 1:50 p.m., Life Sciences Building 001.

Final exam: Friday May 5, 5:15 – 7:15 p.m., Life Sciences Building 001.

Recitations:

Monday (M002)	3:45 pm – 4:40 pm	Life Science Building 200
Wednesday (M003)	6:45 pm – 7:35 pm	Center for Science and Technology 1-019
Tuesday (M004)	3:30 pm – 4:25 pm	Life Science Building 011
Monday (M005)	12:45 pm – 1:40 pm	Physics Building 104N
Wednesday (M006)	8:25 am – 9:20 am	Life Science Building 011
Wednesday (M007)	11:40 am – 12:35 pm	Sims Hall 237
Wednesday (M008)	10:35 am – 11:30 am	Life Science Building 300

Teaching Assistants:

Shafi Ali: sali09@syr.edu

Minh Dinh: midinh@syr.edu

Tiffany Greenfield: tjgreenf@syr.edu

A schedule of office hours will be posted on Blackboard. Students are free to seek help from *any* of the 8 CHE 116 TAs that are teaching this semester, not just the TA who teaches their particular recitation section.

NOTE: The CHE 116 (General Chemistry *lecture*) instructor and TAs have no overlap with the CHE 117 (General Chemistry *laboratory*) course in any way. If you have questions regarding CHE 117, you must contact the CHE 117 instructor or TAs.

Course Description

This course builds on the material learned in CHE 106 and introduces chemical kinetics and thermodynamics, intermolecular forces, detailed chemical equilibria, and introductory organic chemistry.

Textbook and Supporting Materials (available at the SU bookstore):

- Chemistry the Central Science 13th ed. by Brown, Lemay, Bursten, Murphy, Woodward, and Stoltzfus
- Student's Guide, 13th ed.
- MasteringChemistry:
 - Register in Blackboard under Tools / Pearson's MyLab and Mastering / Welcome to MasteringChemistry (course ID: **kahan79864**)
- Turning Technologies Turning Account/Responseware Licence
 - You may use a physical clicker **or** a personal device (e.g. phone, laptop)

Your basic responsibilities include:

- Attend lectures and read appropriate materials prior to class time
- Study lecture notes and assigned readings
- Attend recitations
- Do assigned homework on time and review before exams
- Take all examinations
- Address issues promptly

Bring a non-graphing calculator to all lectures, recitations, and exams. Make sure you know how to use the calculator properly before the exam.

If you have questions about the homework, exams, or anything else, it is your responsibility to contact Dr. Kahan or a TA to get help in a timely manner. Emails are unlikely to be answered after 5:00 p.m. or on weekends, so plan accordingly.

Approximate Lecture Schedule

The following lists lecture topics by date, along with associated readings from the text book. Complete the reading before the scheduled lecture, as it will make following the lecture much easier. Copies of lecture notes will be posted on Blackboard.

Date	Lecture	Topic	Text reading
Tue. Jan. 17	1	Course overview	Syllabus
Thu. Jan. 19	2	Reaction rates, concentration and rate	14.1 – 14.3
Tue. Jan. 24	3	Concentration vs. time, temperature and rate	14.4 – 14.5
Thu. Jan. 26	4	Reaction mechanisms, catalysis	14.6 – 14.7
Tue. Jan. 28	5	Chemical equilibrium, equilibrium constants	15.1 – 15.2
Thu. Feb. 2	6	Using equilibrium constants	15.3 – 15.6
Tue. Feb. 7	7	Le Chatelier's principle	15.7
Thu. Feb. 9	8	Acids and bases, pH	16.1 – 16.4
Tue. Feb. 14	9	Strong / weak acids and bases	16.5 – 16.8
Thu. Feb. 16	10	Acid / base salt solutions, Lewis acids and bases	16.9 – 16.11
Tue. Feb. 21	11	Common ion effect, buffers	17.1 – 17.2
Thu. Feb. 23	--	EXAM #1	Chapters 14, 15, 16
Tue. Feb. 28	12	Solubility equilibria	17.4
Thu. March 2	13	Solubility equilibria, precipitation, qualitative analysis	17.5 – 17.7
Tue. March 7	14	Intermolecular forces, liquids, phase diagrams	11.1 – 11.4
Thu. March 9	15	Vapor pressure, phase diagrams	11.5 – 11.6
Tue. March 14	--	SPRING BREAK	
Thu. March 16	--	SPRING BREAK	
Tue. March 21	16	1 st , 2 nd , and 3 rd laws of thermodynamics	19.1 – 19.3
Thu. March 23	17	Entropy, free energy, free energy and temperature / equilibrium constants	19.4 – 19.7
Tue. March 28	18	Solutions	13.1 – 13.3
Thu. March 30	--	EXAM #2	Chapters 17, 11, 19
Tue. April 4	19	Solutions, chemistry of the environment (water)	13.4, 18.3 – 18.4
Mon. April 6	20	Green chemistry	18.5
Tue. April 11	21	Hydrocarbons: Alkanes, alkenes, alkynes	24.1 – 24.3
Thu. April 13	22	Functional groups	24.4

Tue. April 18	23	Materials: Structure of solids, semiconductors	12.1 – 12.7
Thu. April 20	--	EXAM #3	Chapters 13, 18, 24
Tue. April 25	24	Materials: Polymers, plastics, liquid crystals, nanomaterials	12.8 – 12.9
Thu. April 27	25	TBA	
Tue. May 2	26	Course review	
Fri. May 5 (5:15 – 7:15)		CUMULATIVE FINAL EXAM	All material

Recitations and Homework

Each week, the homework assignments specified below will be discussed, and students will have the opportunity to discuss the course material with TAs. A quiz will also be written at each recitation. The quizzes are worth up to 2% of the total grade in **extra credit**.

Homework is to be completed and turned in on the MasteringChemistry website. No exceptions.

Homework is due on Sundays at 11:59 p.m. (just before midnight). Any homework submitted after that time (i.e. as soon as the clock strikes midnight) will be penalized 20%. A further 20% will be deducted every 24 hours after that, including weekends. There will be no exceptions. Submit your homework early to avoid problems.

The following is an approximate schedule for assignments that are due on MasteringChemistry each week. The textbook contains the answers to most odd-numbered problems and some even-numbered problems. The Solutions Manual contains detailed solutions to these problems; several copies are held on reserve in the Science and Technology Library (Carnegie Library Building). If you are having difficulty, refer to the Solutions Manual and Student Guide to assist you. The TA office hours are also an excellent resource.

Homework assignments consist of a mixture of tutorial questions and problems from the textbook and other sources. All homework questions are graded. You should complete the tutorial questions first, since they are designed to prepare you for the other problems.

****CONSULT THE MASTERINGCHEMISTRY WEBSITE FOR ACTUAL ASSIGNED PROBLEMS****

Week	Sections Covered	Assignment	Due Date (11:59 p.m.)
Jan. 16 – 20	No recitations	No homework due	
Jan. 23 – 27	14.1 – 14.3	Homework #1	Sunday, Jan. 29
Jan. 30 – Feb. 3	14.4 – 14.7	Homework #2	Sunday, Feb. 5
Feb. 6 – 10	15.1 – 15.6	Homework #3	Sunday, Feb. 12
Feb. 13 – 17	15.7, 16.1 – 16.4	Homework #4	Sunday, Feb. 19
Feb. 20 – 24	16.5 – 16.11	Homework #5	Sunday, Feb. 26
Feb. 27 – Mar. 3	17.1 – 17.2	Homework #6	Sunday, Mar. 5
Mar. 6 – 10	17.4 – 17.7	Homework #7	Sunday, Mar. 12
Mar. 13 – 17	No recitations	No homework due	
Mar. 20 – 24	11.1 – 11.6	Homework #8	Sunday, Mar. 26
Mar. 27 – 31	19.1 – 19.7	Homework #9	Sunday, Apr. 2
Apr. 3 – 7	13.1 – 13.3	Homework #10	Sunday, Apr. 9
Apr. 10 – 14	13.4, 18.3 – 18.5	Homework #11	Sunday, Apr. 16
Apr. 17 – 21	24.1 – 24.5	Homework #12	Sunday, Apr. 23
Apr. 24 – 28	12.1 – 12.9	Homework #13	Sunday, Apr. 30

Exams

Three in-class exams will be held on Feb. 23, March 30, and April 20 (all Thursdays). These will be held during regular class hours in LSB 001.

The final exam is Friday May 5 in LSB 001 from 5:15 – 7:15. This exam is cumulative.

****MAKE YOUR TRAVEL PLANS NOW.****

NO ACCOMODATIONS FOR STUDENT TRAVEL / EXAM CONFLICTS WILL BE MADE.

Exams are a mixture of multiple choice, short answer, and long answer / calculations. They are not Scantron exams. Exams may be written in pen or pencil. Non-graphing calculators are allowed. **Cell phones and tablets are not allowed.**

Lecture and Recitation Attendance

Attendance is not recorded during the lecture, and is not part of the student's grade. However, students must attend lectures in order to receive extra credit for the clicker questions that form part of the lecture. No extra credit will be awarded if questions are not answered during class and recorded by Turning Technologies. It is the student's responsibility to ensure that they attend class, that they bring their clicker or responseware device, and that their device is operating correctly. Extra credit is awarded for answering clicker questions, **not** for getting the correct answer.

Attendance is not recorded for recitations. However, students must attend recitations in order to write the recitation quiz and receive extra credit.

Attendance for quizzes and exams

Recitation quizzes can not be written at any time except during the student's scheduled recitation. No makeup quizzes will be given for any reason.

No makeup examinations (for in class or final exams) will be given. An approved absence that prevents the student from taking the exam at the scheduled time will result in that grade being dropped from the calculation of the overall class grade. Medical absences will be excused based on written advice from the Health Center or a health-care provider (based on clinical findings and prescribed treatment recommendations). **No verbal excuses will be accepted.** The medical document must specifically indicate that you were unable to attend the exam. All such absences will be verified by Chemistry Department staff.

Religious Observances Policy (http://supolicies.syr.edu/emp_ben/religious_observance.htm)

SU recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice/Student Services/Enrollment/My Religious Observances from the first day of class until the end of the second week of class. The religious observances policy requires accommodation for the religious holiday itself, not for travel days if a student will be observing the holiday elsewhere.

Academic Integrity

The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see http://supolicies.syr.edu/ethics/acad_integrity.htm.

Special Accommodations

If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>, located at 804 University Avenue, room 309, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities "Accommodation Authorization Letters" as appropriate. As accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Grading

Total grades for the course will be determined based on online homework, three in-class exams, and a cumulative final exam. Grades will generally not be curved, but Dr. Kahan reserves the right to do so. If grades are curved, they will only be curved up, never down.

Online homework	10%
In-class exams (3 exams, 20% each)	60%
Cumulative final exam	30%

Grading Scheme:

Percentage (%)	Letter Grade
< 50	F
50 - 56	D
57 - 59	D+
60 - 62	C-
63 - 66	C
67 - 69	C+
70 - 72	B-
73 - 76	B
77 - 79	B+
80 - 89	A-
> 90	A

Extra Credit

Two opportunities for extra credit exist.

1. Answering at least 70% of in-class responseware questions during a lecture will give a student a point for that lecture. If points are obtained for at least 17 lectures, the student will receive an extra 2% on their final grade for the course. If fewer than 17 points are obtained, no extra credit will be awarded.

2. The recitation quizzes will be graded. Quizzes that are not written will be awarded a grade of zero. The average score of all quizzes (including those with grades of zero) will be applied to the student's final grade as extra credit up to a maximum of 2% of the final grade using the following scheme:

Grading Scheme:

Percentage (%)	Bonus Points (%)
70 – 100	2
40 – 69	1
< 40	0

Dr. Kahan may provide further opportunities for extra credit at her discretion. Such opportunities will be announced in class (and may not be announced elsewhere), and will be available for every student. It is the student's responsibility to make themselves aware of such opportunities. Opportunities for extra credit will not be made available to students on an individual basis.