

CHE 116 – General Chemistry II Lecture (M025)
Spring 2017 Semester
MW 2:15 – 3:35 PM
001 Life Science Building

Instructor	Prof. Dustin McCall
Contact Information	dmccall@syr.edu
Office	117 Life Science Building
Office Hours	Monday 3:45 – 4:45 PM
Website	http://blackboard.syr.edu (CHE.116.M025)
Recitation Teaching Assistant Office Hours	Yuetian Chen (ychen208@syr.edu) Annastacia Stubbs (adstubbs@syr.edu) Elaina Zito (ejzito@syr.edu) 115 Life Science Building*

* Teaching assistant office hours to be announced

Course Description:

Builds upon the fundamental chemical principles learned in CHE 106 and introduces chemical kinetics and thermodynamics, intermolecular forces, advanced chemical equilibria, introductory organic chemistry, and modern materials. (3 credits)

This course is composed of a lecture and recitation component. Please check with your course schedule for the time and meeting place of your recitation section.

Co-requisite:

CHE 117 – General Chemistry Laboratory II (1 credit). *Please note that this course should be taken in concert with CHE 116 but is a separate course with separate staff and grading. Please check with your course schedule for the time and meeting place of your laboratory class. All questions regarding CHE 117 should be forwarded to the CHE 117 instructor or teaching assistants.*

Learning Outcomes:

- Interpret and predict chemical phenomena through chemical behavior
- Understand selected chemical processes
- Solve new problems related to chemical behavior
- Understand chemical kinetics, chemical thermodynamics, intermolecular forces, chemical equilibria, introductory organic chemistry, and modern materials
- Understand topics at the conceptual and quantitative levels
- Be able to relate material learned in CHE 106 to material learned in CHE116

Student Responsibilities:

- Take responsibility for your own learning and education
- Attend lectures, participate, listen, and learn
- Read the assigned material in the text
- Study lecture notes and assigned material in the text
- Do the assigned online homework assignments before they are due and review them regularly
- Regularly attend recitation sections and participate
- Take all examinations, including the final examination
- Always have a scientific calculator
- Respect your professor and fellow classmates
- Contact Prof. McCall or a teaching assistant if you have any questions about the course or the material covered in the course
- Do your best not to fall behind in the course as it difficult to recover

Required Texts and Supplemental Material:

Text: Chemistry, The Central Science, 13th ed. by Brown, LeMay, Bursten, Murphy, Woodward, and Stoltzfuz (Pearson Education, Inc. - 2015)

Online Homework: *MasteringChemistry* which is now accessed through Blackboard

** The text and MasteringChemistry access code can be purchased through the Syracuse University Bookstore as a package*

In-Class Clicker Questions: Turning Technologies account and license and ResponseWare on a smartphone, tablet, or laptop with WiFi or data connection.

Additional Texts and Supplemental Material:

The Student Guide, 13th ed. by Brown and Hill (Pearson Education, Inc. – 2015)

Solutions Manuals are available on reserve at the Science and Technology Library. The Solutions Manual contains detailed solutions to odd-numbered problems from the text.

Grading:

In-Class Examinations:	60%
Comprehensive Final Exam:	30%
<u>MasteringChemistry Homework Assignments:</u>	10%
Course Total:	100%

A	≥ 90%
A-	≥ 88%
B+	≥ 85%
B	≥ 80%
B-	≥ 75%
C+	≥ 70%
C	≥ 60%
C-	≥ 55%
D	≥ 45%
F	< 45%

No “extra credit” will be offered in this course besides in-class clicker questions and recitation quizzes. Grades earned are not typically “curved” but Prof. McCall reserves the right to “curve” grades at the end of the semester if he sees necessary. Grades will not be “curved” down in any case.

Examinations:

Examinations will cover material from the text, lectures, quizzes, clicker questions, and MasteringChemistry homework assignments. Please bring a basic four function or scientific calculator to all examinations with back-up batteries. No additional calculators will be available during any examination. Please bring #2 pencils and erasers to all examinations. **Graphing calculators and cell phones are not allowed during examinations and will be confiscated during the examination if used.**

Examination I.....Monday, February 27, 2:15-3:35 PM
Examination II.....Monday, April 3, 2:15-3:35 PM
Examination III.....Monday, April 24, 2:15-3:35 PM
FINAL EXAMINATION.....**WEDNESDAY, MAY 10, 8:00-10:00 AM**

All examinations will be held in Life Science Building 001.

Online Homework Assignments:

If you were in enrolled in CHE 106 during the Fall 2016 semester, your MasteringChemistry account and access code should still be active for the Spring 2017 semester for CHE 116.

1. Log into Blackboard and select “CHE.116.M025.SPRING17.General Chemistry Lecture II” from “My Courses”
2. Select “Tools” on the left side menu.
3. Select “Pearson’s MyLab & Mastering”

4. Select any course link in the top area of the Pearson's MyLab & Mastering Tools page
5. If you have a Pearson account already, log in using your Pearson username and password. If you do not have a Pearson account, select "Create" and follow instructions
6. Enter your access code purchased from the Syracuse University Bookstore
7. From the "You're Done" page, select "Go to My Courses"

Online homework assignments will be posted on MasteringChemistry once per week and will reflect content material learned in lecture for that week. **Online homework assignment due dates will be posted on MasteringChemistry.** It is your responsibility to stay vigilant regarding the online homework assignment due dates. Homework assignments will be due on Sundays at 11:59 PM. No credit will be given to assignments completed after the due date.

Each student is expected to independently complete online homework assignments using their individual MasteringChemistry account.

The schedule is tentative and is subject to change at the instructor's discretion.

Homework	Chapter	Due Date
Optional (Additional Credit)	CHE 106 Review	1/29 11:59 PM
Optional (Additional Credit)	Introduction to MasteringChemistry	1/29 11:59 PM
1	14 (Part 1)	2/5 11:59 PM
2	14 (Part 2)	2/12 11:59 PM
3	15	2/19 11:59 PM
4	16 (Part 1)	2/26 11:59 PM
5	16 (Part 2)	3/5 11:59 PM
6	17	3/12 11:59 PM
7	11	3/26 11:59 PM
8	19	4/2 11:59 PM
9	13	4/9 11:59 PM
10	18	4/16 11:59 PM
11	24	4/23 11:59 PM
12	12	4/30 11:59 PM

Turning Technologies Account:

All students need to have a 12-month license to respond during lecture. Students can make their purchase at the SU Bookstore or from the Turning Technologies Student Store after creating a Turning Technologies Account. Since we will be using the ResponseWare software, please **ONLY** purchase the license and **NOT** the physical clicker. Further instructions for adding a license or device to a Turning Technologies account can be found at: <https://answers.syr.edu/display/clicker/Student+Turning+Account>

1. Log into Blackboard and select "CHE.116.M025.SPRING17.General Chemistry Lecture II" from "My Courses"
2. Select "Tools" on the left side menu.
3. Select "Turning Account Registration"
4. Enter your Syracuse University email and click "Create" if you do not have an account. If you have an account, enter your Syracuse University email and your Turning Account password, click "Sign In," and proceed to Step 7.
5. A confirmation will be sent to your email. Once you receive this, click on the link in the email to complete account setup.
6. At the next screen:
 - a. Enter your name and email address
 - b. Leave User ID Blank
 - c. Under "Role", select "Participant"
 - d. Create a password for your Turning Account
 - e. Click "Create Account"
7. Make sure the Learning Management System box shows a green checkmark

Attendance:

Attendance for lecture is mandatory in order to perform well in the course and earn participation credit for in-class clicker questions. Students will be allowed to miss up to three lectures to still be eligible for full participation credit. As participation credit is not part of the overall grade but rather considered additional credit, both unexcused and excused absences will count towards the three allowed absences. Additional allowed absences will not be considered for participation credit. Missing more than three lectures will not count against your overall grade in the course as this is considered additional credit.

Attendance for examinations is mandatory and all unexcused absences will result in an examination grade of zero. All planned, excused absences (religious observances) must be discussed with Prof. McCall at least one week prior to the examination date and the make-up examination will be given before the regularly scheduled examination date.

Unplanned excused absences include medical emergencies which require a **WRITTEN EXCUSE** signed by the Health Center or a health-care provider. The signed, written excuse must explain why you were unable to attend that specific examination and the time and date that you were seen by the health-care provider. All absences will be approved by Prof. McCall and the Chemistry Department Staff. NO VERBAL EXCUSES WILL BE ACCEPTED.

Recitations:

Recitation will be held once a week and students will have the opportunity to ask questions regarding course material or homework assignments for that week. Recitation is designed so students can ask questions to clarify confusion regarding course material but are NOT a replacement for lecture. Attendance for recitation is mandatory in order for students to perform well in the course and earn credit for recitation quizzes. As recitation quizzes are not part of the overall grade but rather considered additional credit, make-up quizzes will not be given for both unexcused and excused absences. Missing a recitation quiz will not count against your overall grade in this course since this is considered additional credit.

Section	Day	Time	Place	Teaching Assistant
M026	Monday	11:40 AM – 12:35 PM	Life Science Building 100	Elaina Zito
M027	Wednesday	11:40 AM – 12:35 PM	Slocum Hall 104	Elaina Zito
M028	Monday	12:45 – 1:40 PM	Huntington Beard Crouse Hall 323A	Annastacia Stubbs
M029	Friday	12:45 – 1:40 PM	Life Science Building 200	Elaina Zito
M030	Tuesday	9:30 – 10:25 AM	Sims Hall 237	Annastacia Stubbs
M031	Monday	5:15 – 6:10 PM	Sims Hall 237	Annastacia Stubbs
M032	Thursday	8:25 – 9:20 AM	Life Science Building 011	Yuetian Chen
M033	Tuesday	12:30 – 1:25 PM	Life Science Building 011	Yuetian Chen

The schedule is tentative and is subject to change at the instructor's discretion.

Week	Quiz	Topic
1/16 – 1/20	No Recitation	First Week of Classes
1/23 – 1/27	1	CHE 106 Review
1/30 – 2/3	2	Rate Laws
2/6 – 2/10	3	Equilibrium Constants
2/13 – 2/17	4	Le Châtelier's Principle
2/20 – 2/24	5	Acid/Base Equilibrium
2/27 – 3/3	No Quiz	Examination I
3/6 – 3/10	6	Solubility Equilibrium
3/13 – 3/17	No Recitation	Spring Break
3/20 – 3/24	7	Intermolecular Forces
3/27 – 3/31	8	Entropy
4/3 – 4/7	No Quiz	Examination II
4/10 – 4/14	9	Gibbs Free Energy
4/17 – 4/21	10	Solution Chemistry
4/24 – 4/28	No Quiz	Examination III
5/1 – 5/5	No Recitation	Last Week of Classes/ Final Examinations
5/8 – 5/12	No Recitation	Final Examinations

Tentative Lecture Schedule:

The schedule is tentative and is subject to change at the instructor's discretion.

Monday	Wednesday
1/16 Martin Luther King Jr. Day No Class	1/18 Course Overview
1/23 Reaction Rates and Concentration and Rate Laws (Chapter 14)	1/25 Relationship between Concentration and Time and Rate and Temperature (Chapter 14)
1/30 Reaction Mechanisms and Catalysis Clicker Questions Start (Chapter 14)	2/1 Chemical Equilibrium and Equilibrium Constants (Chapter 15)
2/6 Quantitative Approach to Equilibrium, Heterogeneous Equilibrium, and Applications of Equilibrium (Chapter 15)	2/8 Le Châtelier's Principle (Chapter 15)

<p style="text-align: center;">2/13 Brønsted-Lowry Acids/Bases, Autoionization of Water, and pH (<i>Chapter 16</i>)</p>	<p style="text-align: center;">2/15 Strong/Weak Acids/Bases and Acid/Base Equilibrium (<i>Chapter 16</i>)</p>
<p style="text-align: center;">2/20 Acid/Base Properties of Salt Solutions, Acid/Base Behavior and Chemical Structure, and Lewis Acids/Bases (<i>Chapter 16</i>)</p>	<p style="text-align: center;">2/22 The Common-Ion Effect and Buffers (<i>Chapter 17</i>)</p>
<p style="text-align: center;">2/27 EXAMINATION I (Chapters 14,15,16)</p>	<p style="text-align: center;">3/1 Acid/Base Titrations and Solubility Equilibrium (<i>Chapter 17</i>)</p>
<p style="text-align: center;">3/6 Factors Affecting Solubility, Precipitation and Ion Separation, and Qualitative Analysis of Metallic Elements (<i>Chapter 17</i>)</p>	<p style="text-align: center;">3/8 Phases of Matter, Intermolecular Forces, Properties of Liquids, and Phase Changes (<i>Chapter 11</i>)</p>
<p style="text-align: center;">3/13 Spring Break No Class</p>	<p style="text-align: center;">3/15 Spring Break No Class</p>
<p style="text-align: center;">3/20 Vapor Pressure and Phase Diagrams (<i>Chapter 11</i>)</p>	<p style="text-align: center;">3/22 Spontaneous Processes, Entropy, the Second Law of Thermodynamics, and the Third Law of Thermodynamics (<i>Chapter 19</i>)</p>
<p style="text-align: center;">3/27 Entropy and Chemical Reactions, Gibbs Free Energy, Free Energy and Temperature and Equilibrium Constants (<i>Chapter 19</i>)</p>	<p style="text-align: center;">3/29 Solutions and Solubility (<i>Chapter 13</i>)</p>
<p style="text-align: center;">4/3 EXAMINATION II (Chapters 11,17,19)</p>	<p style="text-align: center;">4/5 Solution Concentrations and Water (<i>Chapters 13,18</i>)</p>
<p style="text-align: center;">4/10 Green Chemistry (<i>Chapter 18</i>)</p>	<p style="text-align: center;">4/12 Organic Molecules and Hydrocarbons (<i>Chapter 24</i>)</p>
<p style="text-align: center;">4/17 Organic Functional Groups and Chirality (<i>Chapter 24</i>)</p>	<p style="text-align: center;">4/19 Classification and Structure of Solids and Metallic, Ionic, Molecular, and Covalent- Network Solids (<i>Chapter 12</i>)</p>
<p style="text-align: center;">4/24 EXAMINATION III (Chapters 13,18,24)</p>	<p style="text-align: center;">4/26 Polymers, Liquid Crystals, and Nanomaterials (<i>Chapters 11,12</i>)</p>

5/1 Open as Needed	5/3 Reading Day No Class
5/8 Final Examinations No Class	5/10 FINAL EXAMINATION LIFE SCIENCE BUILDING 001 8:00 AM – 10:00 AM (Chapters 11-19,24)

Additional Credit Opportunities:

Optional MasteringChemistry Assignments

In-Class Clicker Questions: Students will be eligible to receive additional credit for participating in-class by answering a series of in-class clicker questions throughout the semester. Students will receive credit solely for answering questions and not whether students answer clicker questions correctly or incorrectly. Participation has to be recording by the Turning Technologies software in order to receive additional credit. Clicker questions can only be answered during lecture when the question is presented. Clicker questions will appear in 21 different lectures starting on Monday, January 30, 2017. Since three absences are allowed, additional credit will be rewarded based on the following criteria:

Clicker questions answered completely for:

- 18 Lectures – Additional 2% to overall grade
- 10-17 Lectures – Additional 1.5% to overall grade
- 9 Lectures – Additional 1% to overall grade
- 1-8 Lectures – Additional 0.5% to overall grade
- 0 Lectures – No additional credited added to overall grade

Recitation Quizzes: Students will be eligible to receive additional credit for taking quizzes during recitation. Students will receive additional credit for answering quiz questions correctly. As recitation quizzes are not part of the overall grade but rather considered additional credit, make-up quizzes will not be given for both unexcused and excused absences. Missing a recitation quiz will not count against your overall grade in this course since this is considered additional credit.

- 75 - 100% overall quiz average – Additional 2% to overall grade
- 50 - 75% overall quiz average – Additional 1.5% to overall grade
- 25 - 50% overall quiz average – Additional 1% to overall grade
- 1 - 25% overall quiz average – Additional 0.5% to overall grade
- 0% overall quiz average – No additional credited added to overall grade

Academic Integrity:

Complete academic honesty is expected of all students. Students are expected to complete examinations and online homework assignments independently and the examinations and online homework assignments must represent the work of the individual student. Please refer to Syracuse University's Academic Integrity Policy and the statement below:

“Syracuse University’s academic integrity policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The university policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same written work in more than one class without receiving written authorization in advance from both instructors. The presumptive penalty for a first instance of academic dishonesty by an undergraduate student is course failure, accompanied by a transcript notation indicating that the failure resulted from a violation of academic integrity policy. SU students are required to read an online summary of the university’s academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. For more information and the complete policy, see <http://academicintegrity.syr.edu/>.”

Disability-Related Accommodations:

If you believe that you need accommodations for a disability, please speak with Prof. McCall within the first two weeks of the course to arrange for accommodations. No accommodations will be made if the instructor is notified after an examination.

“If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498, TDD: (315) 443-1371 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. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.”

Diversity and Disability Statement:

“Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are useable, equitable, inclusive and welcoming. If there are aspects of the instruction or design of this course that result in barriers to your inclusion or accurate assessment or achievement, we invite any student to meet with the instructor to discuss additional strategies beyond accommodations that may be helpful to your success.”

Religious Observances Policy:

“SU religious observances notification and policy, found at <http://hendricks.syr.edu/spiritual-life/index.html>, recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays 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 regular session classes and by the submission deadline for flexibly formatted classes.

For fall and spring semesters, an online notification process is available for students in **My Slice / StudentServices / Enrollment / MyReligiousObservances / Add a Notification**. Instructors may access a list of their students who have submitted a notification in My Slice Faculty Center.”

Additional Statement:

All lecture materials, recitation quizzes, in-class clicker questions, examinations, practice examinations, textbook materials, homework questions, and tutorials are property of Prof. McCall, Syracuse University, and/or Pearson Education, Inc. Any unauthorized distribution of these materials in any manner is strictly prohibited.

By enrolling in this course, you agree to abide by all conditions outlined in this syllabus. The contents of this syllabus can be changed at any time by Prof. McCall at his discretion.