

FCH 150 – General Chemistry I

SUNY College of Environmental Science and Forestry

Fall

Course Meetings: Section I: MWF 8:25 AM – 9:20 AM, Illick 5
Section II: MWF 12:45 PM – 1:40 PM, Illick 5
Section III: MWF 11:40 AM – 12:35 PM, Baker 146

Lecture Text: **Atoms First 2e**, OpenStax

Instructors: **Dr. Neal M. Abrams** (section I and II)
422 Jahn
315-470-4723
nmabrams@esf.edu
Office Hours in Gateway:
Monday 1:50-3:50 PM
Wednesday 9-10 AM
and by appointment

Graduate Teaching Assistants:
Graduate assistant office hours TBA

Recitation Assistants and lab Teaching Assistants:

*Science is a way of thinking much more than it is a body of knowledge.
~Carl Sagan*

DESCRIPTION:

General Chemistry I is the first half of an introductory course in the study of chemistry: the central science. Chemistry is the study of what materials and substances are made of and how they interact with each other and their environment. In this course, we will begin to understand matter by studying the building blocks of atoms and molecules and end our discussions by looking at how elemental make-up, size, shape and specific properties influence the behaviors of the phases of matter.

STUDENT LEARNING OUTCOMES

At the end of this course, successful students will be able to:

- Interpret and analyze fundamental chemical concepts and principles
- Assess and identify the use of the scientific method in chemistry
- Demonstrate problem-solving and analytical skills
- Integrate chemistry into a foundation of scientific concepts
- Develop critical thinking skills to solve chemistry-related problems

TEXTBOOKS AND SUPPLIES:

- [Atoms First 2e](#) (see book info below)
- Calculator, scientific or graphing (**REQUIRED - No phones, tablets, or smart watches are allowed for exams**) - available in either the SU or Gateway bookstore.

The textbook is open-course, free, and online. You have a few options on ways you can access the book, including print and ebook formats. The options are below:

- 1) **Simplest and most cost-effective option:** Use the online web-linked textbook and read directly online. Your book is available in web view and PDF for free. The web view is recommended - the responsive design works seamlessly on any device.
<https://openstax.org/details/books/chemistry-atoms-first-2e>
- 2) **Book and eBook.** You can also choose to purchase on iBooks or get a print version via the campus bookstore or from OpenStax on Amazon.com. You can use whichever format you want. If you buy on Amazon, make sure you use the link below so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)
Amazon link: <https://www.amazon.com/Chemistry-Atoms-First-2e-OpenStax/dp/1593995792>

The short story is...

LEARNING ASSESSMENT

- There will be **3 exams** during the semester given on the dates indicated on the course schedule. **NO MAKE-UP EXAMS** will be given under any circumstances, but one of your lowest grades will be dropped. (40 %)
- Approximately 10-12 problem-oriented **quizzes** will be given during weekly recitation sessions throughout the semester. No make-ups are given, but the lowest 2 lowest quiz grades will be dropped. (20 %)
- A comprehensive **final exam** will be given as scheduled by the University. (25 %)
- Homework will be assigned through Blackboard and occasionally on paper. These must be completed by the listed due date. (10 %)
- **Professionalism** is illustrated by your participation in class, interactions with peers and instructors, and your overall attitude toward the course. Note how you write emails...use a salutation and a closing at all times, see notes below. (5 %)
- Weekly recitations are led by graduate teaching assistants. Quizzes are given during recitations.
- Workshops are held weekly (see below). Attendance at these **workshops and reviews** is optional but active attendance will increase your level of understanding, which will lead directly to an improvement in your performance on other areas of the course.

Most grades will be posted to the Blackboard site so you should be able to track your own progress throughout the semester. Each component of your grade will be weighted, that is to say, if you take your final average for exams and multiply it by 0.40 that is the contribution to your overall grade for your exams, do that for each component and add them together and that will be your grade for the entire class. The weights for each component of the course are as follows:

Exams	~40%	Quizzes	~20%
Final exam	~25%	Homework	~10%
Professionalism	~ 5%		

The grading scale for this class is:

A = 93–100%	B+=87-89%	B- = 80-82%	C = 73-76%	D = 60-69%
A- = 90-92%	B= 83-86%	C+ = 77-79%	C- = 70-72%	F = <60%

INTERNET AND MEDIA RESOURCES

Our course uses Blackboard offered through Syracuse University. You can log into it through blackboard.syr.edu. The course site is **FCH.150.Merged.Fall19**. This site will be vital to your success in General Chemistry. You will use it to sign up for your recitation sections, get the homework assignments, and to communicate with your peers and with the teaching staff. Also, do not forget to take advantage of the e-book and associated content, which you can locate through Blackboard.

RECITATIONS

There are weekly recitations led by a graduate student from general chemistry lecture or lab. Typically, graduate-student recitations will focus on lecture review and reinforcing content understanding through practice problems and discussions. At least 10 recitation section will be scheduled each week, each limited to 30 students or less. Signups occur during the first week of class, and you should pick one that fits your class schedule. Quizzes are given during graduate recitations most weeks, so you should plan to attend recitation each week.

WORKSHOPS

Workshops are small group sessions led by a peer-mentor. They are designed to increase your ability to problem solve and to provide a place for group participation. You may be required or recommended to attend workshop sessions based on your course performance and/or your performance on the ALEKS learning modules from the summer. Students who are not required or requested to go are welcome to attend, space permitting. The schedule is posted on Blackboard. Problem-solving, both mathematical and conceptual, are a large part of chemistry and workshops are intended to do the problems that cannot be done in lectures.

OFFICE HOURS

Office hours for both the instructors and the Teaching Assistants will be posted on our Blackboard site. Dr. Abrams' office hours will be held in Gateway at times indicated above. Everyone is welcome to come and bring problems and we will work them in a small group format. Should the volume of students exceed capacity, we will just get a bigger table! Office hours are routinely increased for exam weeks. It is entirely possible that these hours will not work for you, if that is the case, please do not hesitate to email Dr. Abrams and set up an appointment.

If you should like to speak to Dr. Abrams personally, it is better to send an email for an individual appointment (nmabrams@esf.edu). Office hours are generally not the time to talk about grades or other personal situations due to all the potential interruptions and lack of privacy.

All of the teaching assistants (TAs) will have open Office Hours inside the Academic Success Center in Moon Library. The hours will be posted to the Blackboard website within the first two weeks of class. Some TAs focus more on lab-duties, others on lectures. In either case, we all work together and want you to succeed, but you may find that you work better with the instructor or certain teaching assistants more than others. That is OK, just find the person who works well with you (measured by success on assignments).

Do not be afraid to talk to the professor - that is what we are here for and it is better to establish a working relationship BEFORE you get in over your head than after. Introduce yourself or say "hi" during office hours, even if you do not have a pressing chemistry question. Setting aside time each week to review your notes and meet with the professor is the best way to stay ahead and prevent being swallowed by last minute studying.

Remember when seeking help in office hours, we need to see your work in order to help you. Coming to us with "I don't get anything" isn't going to help you or us diagnose and set up a plan. Just like playing a musical instrument or learning a new sport or hobby, you first must try a problem and bring the results of your effort to us so we can best help you.

EMAIL

Email is the single best way to get in touch with the instructors for this course. Please start all subject lines with **FCH150:** so we know the course and context of your message. It is common courtesy to use a salutation to start your email and a closing to end it. Without these general forms of etiquette, email comes across as abrupt and negative. Further, be careful how you phrase your email, sometimes you do not intend for a message to be offensive, but your choice of phrasing makes it appear to be that way.

Course Resources

summary

Lecture

The lecture is your one-stop-shop for all new course content. Lecture is pivotal because it is where we can interact and discuss any tricky parts of the content. Groups form within the lecture, so you can “crowd source” your learning. We also review due dates, course expectations, and tackle exams. Very importantly, lecture is the ONLY place where we will cover new content.

Recitation

Graduate TAs deliver recitations. This is the place to ask clarifying questions on course content and review some problems from in-class or in the book. The recitation is a fantastic resource and you should consider this a required part of General Chemistry. Quizzes are given in the recitation, so find a session that works for you and attend each week.

Workshop

There are 6-8 workshop leaders that will spread workshops throughout the week on a fixed schedule. Workshop leaders are here to help with problems, review old exams, and offer some additional practice problems.

Office hours

Both the instructor and the TAs hold office hours to assist small groups (or individuals) with problems and review material. No appointment needed.

Tutors

If the four resources described above are not helping you with success, you may benefit from specialized tutoring assistance. Tutors are managed through the Office of Academic Success, part of Student Affairs. While tutors are not supervised by the faculty in chemistry, each tutor should have taken this course and been successful.

Seriously?

It may look like we have a lot of “things” for you to do in General Chemistry, but these are all elements to success. Look at your academic and extracurricular schedule and see where the additional pieces (*recitation, workshop, and office hours*) fit into your schedule. We have multiple opportunities to attend each piece, but find one and stick with it. A course resource matrix with title and times will be posted a few weeks into the semester.

Class Schedule

Date	Week	Class #	Chapter	Topic	Other notes and events
26-Aug		1	1	Language of Chemistry and Measurement	Diversity @ ESF 24/7/365
28-Aug	1	2	2	Atomic Theory	
30-Aug		3	4.1-4.3	Elements, Compounds, and Nomenclature	
2-Sep				No Class – Labor Day	No class
4-Sep	2	4	2.4	The Mole	
6-Sep		5	3	Electromagnetic Energy	
9-Sep		6	3	Quantum Mechanics	
11-Sep	3	7	3	"	
13-Sep		8	3	"	
16-Sep		9	3	Electron Configurations	
18-Sep	4	10	3	"	Gen Bio Exam
20-Sep		11	3	Periodicity	Survey Bio Exam Last Day to Drop a Class
23-Sep		12	4	Atomic Properties and Bonding	
25-Sep	5	13		Exam review	Group Work
27-Sep		14		Exam #1	
30-Sep		15	4	Lewis Dot Structures	
2-Oct	6	16	4	Valence Shell Electron Pair Repulsion Theory	
4-Oct		17	5	"	
7-Oct		18	5	Molecular Shape and Polarity	
9-Oct	7	19	5	Valence Bond Theory	
11-Oct		20	5	Hybridization and Multiple Bonds	
14-Oct		21	6	Empirical and Molecular Formulas	Gen Bio exam
16-Oct	8	22	6	Molarity	
18-Oct		23	7	Writing and Balancing Chemical Reactions	Survey Bio Exam
21-Oct		24	7	Reaction Stoichiometry	
23-Oct	9	25	7	"	Mole Day!
25-Oct		26		Exam #2	Last Day to Withdraw with a W
28-Oct		27	7	Solution Stoichiometry	
30-Oct	10	28	7	Quantitative Analysis and Yield	Gen Bio exam
1-Nov		29	7	"	
4-Nov		30	10	Intermolecular Forces	
6-Nov	11	31	10	Liquids	Registration begins
8-Nov		32	10	Solids	Survey Bio Exam
11-Nov		33	10	Phase Diagrams	
13-Nov	12	34	11	Solutions and Colloids	
15-Nov		35	8	Gases	
18-Nov		36	8	Gas Laws and Stoichiometry	
20-Nov	13	37		Exam review	
22-Nov		38		Exam #3	
25-Nov					
27-Nov	14				Thanksgiving Break
29-Nov					
2-Dec		39	12	Thermochemistry	
4-Dec	15	40	12	"	Gen Bio exam
6-Dec		41	12	Thermochemistry and Review	Last Day of Classes

STUDENTS WITH LEARNING AND PHYSICAL DISABILITIES

SUNY-ESF works with the Office of Disability Services (ODS) at Syracuse University, who is responsible for coordinating disability-related accommodations. Students can contact ESF Student Affairs in 110 Bray or Syracuse University ODS at 315-443-4498 to schedule an appointment and discuss their needs and the process for requesting accommodations. To learn more about ODS, visit <http://disabilityservices.syr.edu>. Authorized accommodation forms must be in the instructor's possession one week prior to any anticipated accommodation. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

ACADEMIC HONESTY

Academic dishonesty is a breach of trust between a student, one's fellow students, or the instructor(s). By registering for courses at ESF you acknowledge your awareness of the ESF Code of Student Conduct (<https://www.esf.edu/students/handbook/>), in particular academic dishonesty includes but is not limited to plagiarism and cheating, and other forms of academic misconduct. The Academic Integrity Handbook contains further information and guidance (<http://www.esf.edu/students/integrity/>). Infractions of the academic integrity code may lead to academic penalties as per the ESF Grading Policy (<https://www.esf.edu/provost/documents/GradingPolicy.11.12.2013.pdf>).

CIVILITY and INCLUSION

Since this is a large lecture class, please show the kind of courtesy you would like shown to you, to the professor, the graduate assistants, and the workshop leaders. We are all here to help you and if you are rude or act inappropriately, we will be less willing to work with you. Cell phones, talking in class, and arriving late to class are all examples of actions that are considered a breach of civility. Mute your phone before coming to class! Another caution is the use of email. Be careful what you write, if you are of age and choose to have a drink or two, don't send that email you just wrote to your professor, you will regret it (see below). Let's all observe the "please" and "thank you's" that our parents, friends, and family would expect and it will be a great semester! Talking at inappropriate times during class, using a mobile device to search sites other than for chemistry, or distracting other is disrespectful to the instructor and the rest of the class.

CHOSEN NAME

Some of you may have a Chosen name, the General Chemistry team will support that both informally and formally. ESF has a Chosen Name policy and it would be greatly appreciated if you would take advantage of it so that we have a formal record of it, and it would help us immensely in record keeping here's the link: <http://www.esf.edu/registrar/preferred.htm>. Unfortunately, we have no control over the Blackboard site. We are committed to an inclusive environment, so let us know what you choose to be called!

As an institution, we embrace inclusive excellence and the strengths of a diverse and inclusive community. During classroom discussions, we may be challenged by ideas different from our lived experiences and cultures. Understanding individual differences and broader social differences will deepen our understanding of each other and the world around us. In this course, all people (including but not limited to, people of all races, ethnicities, sexual orientation, gender, gender identity and expression, students undergoing transition, religions, ages, abilities, socioeconomic backgrounds,

veteran status, regions and nationalities, intellectual perspectives and political persuasion) are strongly encouraged to respectfully share their unique perspectives and experiences. This statement is intended to help cultivate a respectful environment, and it should not be used in a way that limits expression or restricts academic freedom at ESF.