

**CHM 2051**  
**GENERAL CHEMISTRY II HONORS**  
**SPRING 2021 – Class #s 28898 & 28899, Sections G510 & G51E**

**Professor:** Dr. Rick Yost

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Office Hours: T 9:35-10:25, W 10:40-11:30, and Th 2:30-3:30 via Zoom, or by appointment

**Teaching Assistant:** Mr. Justin Ellenburg

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Office Hours: M 10:40-11:30, T 12:50-1:40, and F 11:45-12:35 via Zoom, or by appointment

**Lecture:**

T and Th – 4<sup>th</sup> and 5<sup>th</sup> periods (10:40 AM – 12:35 PM), online/synchronous via Zoom/Canvas. Typically the first period each day will be used for lecture (slides will be available on the web), with the second period used for discussions, problem solving, team projects, guest lectures, demonstrations and exam reviews. I plan to post links to the recorded Zoom lectures in case you miss lecture.

**Course Description:** CHM 2051 is an Honors alternative to the traditional General Chemistry II course, CHM 2046.

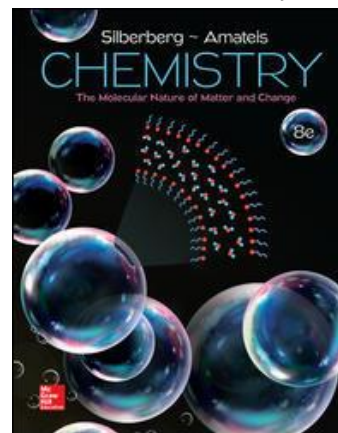
We will cover many of the same topics, often in more depth and at a more personal level, and will take time to consider extensions to real-world applications and insight into current research, all in a more intellectually stimulating small-course environment. The course includes ~2 periods a week of lecture, with the balance of the time devoted to discussions, small-group study, problem solving, demonstrations, debates, and guest lectures. We will also replace much of the descriptive inorganic chemistry covered towards the end of 2046 with advanced topics in atmospheric chemistry (acid rain and global warming, for instance), nuclear chemistry, and introductions to organic, polymer, and biochemistry. The objective of the course is to help you both master the material and develop the problem-solving and critical thinking skills required to assess and appreciate the impact of chemistry on important issues, be they global or personal. Upon completion of the course, you will have a solid foundation in the principles of chemistry and be prepared to progress on to more specialized topics in upper division courses in Chemistry and other disciplines.

**Prerequisites:** CHM 2045 with a grade of “A” (exceptions may be allowed).

**Co-requisites:** CHM 2046L or 2054L.

**Textbook:**

Although no textbook is required, you may find it helpful to have a general chemistry textbook as reading material for lectures and as background for exams and homework problems. In the syllabus and in lecture, I’ll list reading material from the textbook “*Chemistry: The Molecular Nature of Matter and Change*” by Martin S. Silberberg, (any edition), McGraw Hill. This classic text does an excellent job of introducing chemistry as the central science. Some of you may have used this textbook in CHM 2045. You might also like “*Chemistry: Atoms First*” available freely from Open Stax.



**E-Learning:**

CHM 2051 will make use of UF’s E-Learning system (*aka* Canvas) to provide access to lecture slides (slides will typically be posted 2-5 days before each lecture), links to recorded Zoom lectures, homework assignments and answer keys, sample exam questions, additional course content, course news and calendar, as well as access to your individual grades and class grade distributions. If you don’t have Acrobat Reader on your computer to view the lecture slides, you can download it from the E-Learning site. Log in to E-Learning at <http://elearning.ufl.edu/> to access *CHM 2051*. You’ll need your GatorLink ID and password to access E-Learning; if you have problems with E-Learning, you can contact the UF Help Desk in the Hub, refer to the E-Learning website, or call 392-HELP.

**Course Assessments:**

***Exams:*** (750 points)

The course will include three progress exams via Canvas using Honorlock (which requires a webcam and microphone– see [Honorlock-Student-Exam-Preparation-Information](#) during the normal class periods

(250 points each) plus an (optional) comprehensive final exam (250 points) during the final exam period. Each exam will be scheduled for 75 minutes and will cover classroom material and homework problems during the preceding portion of the course; the final will cover material throughout the course. The best 3 out of the 4 exam scores will count towards the course grade; thus, you may choose to skip the final if you're satisfied with your grade at that point. Exam keys will be posted on the E-Learning website.

Exam absences will be handled in accordance with UF academic regulations (see <https://catalog.ufl.edu/UGRD/academic-regulations/>). Acceptable reasons to miss a scheduled exam include religious holidays, military obligations, special curricular requirements, or participation in official UF-sanctioned activities such as athletic competitions. For more information see the official UF Policy at <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencestext>. If you must be absent for an exam due to a documented and approved conflict known in advance, let me know and an early conflict exam can be scheduled for you. If you miss an exam due to an unpredicted documented medical reason or family emergency, let me know as soon as possible and a make-up exam can be scheduled, or you can simply drop the exam and take the final instead.

**Homework Problems:** (150 points)

Because chemistry is such a “learn by doing” subject, homework plays a critical role in helping you learn the concepts and material! Homework problem sets will be assigned each Thursday (in lecture and on the E-Learning site) and will be collected the following Thursday *by the beginning of lecture* via the E-Learning Assignment Dropbox as a single Word or .pdf document (you may need to figure out how to do that before the first homework is due). If you must miss lecture the day homework is due, you must turn it in *prior* to lecture. No late homework will be accepted. All ten homework sets will be graded (15 points each). The answer key for each homework set will be posted after the due date.

**Team Projects and Class Participation:** (100 points)

The students in the class will be divided into ten teams, and each of these teams will either participate in one of three “debates” on controversial topics in Chemistry or will organize one of four “Jeopardy” or “Who Wants to be a Millionaire” games. The members of each team will receive points for their participation in the debate or game (50 points) plus points for general course participation (50 points).

**Extra Credit Quizzes:** (5 points each)

Unannounced extra credit quizzes (over and above the 1000 points in the course) will be given randomly in the course and will be used to encourage you to keep up with the course material. No make-up quizzes will be given. Keys will be posted on E-Learning.

<b>Points in Course:</b>	Best 3 out of 4 exams	750
	Homework Problems	150
	<u>Team Projects and Class Participation</u>	100
	Total	1000
	Extra Credit Quizzes	?

**Course Grading:** Individual exams, quizzes, and homework problem sets will not have letter grades assigned; however, the following course grading scale will provide you some idea of your performance as the course progresses. The grading scale may be lowered at the end of the course, but will not be raised. Thus, you can monitor your progress during the course. More info on UF Grading Policies is available at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

A	≥850	B-	725-749	D+	600-624
A-	825-849	C+	700-724	D	550-599
B+	800-824	C	650-699	E	≤549
B	750-799	C-	625-649		

**Other Information:**

**Attendance:** Past experience in CHM 2051 has shown that performance on exams is highly correlated with attendance and engagement during class. I encourage you to pull up (or print out) the lecture slides posted on E-Learning and use them during lecture to take notes. Remember that the lecture slides will cover only a fraction of the material covered in the lectures and course. Other activities during class (discussion,

problem-solving, team activities, guest lectures) will be designed to significantly enhance the material presented in the course, and will be critical to performance on exams. The extra credit quizzes given during class can also improve your course grade significantly. Thus, I expect you to attend class and participate; also note you are responsible for all announcements made in class as well as in the course E-Learning site.

**Privacy Related Issues:** In addition to posting pdfs of the lecture slides, I plan to record our Zoom lectures and post links to them on Canvas in case you miss lecture or want to refer back to them. If you participate during lecture with your camera engaged or utilize a profile image, you are agreeing to have your video or image recorded. Likewise, if you un-mute during class and participate orally, you are agreeing to have your voice recorded. If you are not willing to consent to having your profile, video image, or voice recorded during class, be sure to keep your camera off, do not use a profile image, stay muted, and communicate instead using the "chat" feature (which will not be recorded). As in all courses, unauthorized recording or sharing of recorded materials is prohibited.

**Office Hours:** Office hours for Dr. Yost and for the TA are listed above. Other times are available – you can use email to make an appointment. We're both here to help you excel in this class!

~~**?? Chemistry Learning Center (CLC):** You'll find other General Chemistry TAs available for help in the CLC (Hernandez Hall 105) daily Monday – Friday, in addition to our office hours.~~

**Re-grade Policy:** We do our best to make the grading fair. If you believe there was an error in the grading of a quiz or exam, you will have *one week* after its return for consideration of grading errors. Briefly describe the grading error as envisioned by you and turn it into Dr. Yost or the TA before the designated time is over. If you pick up your graded quiz or exam late, you must still conform to the above deadline.

**Communication with Instructor and Teaching Assistant:** Please do not use e-mail to ask us specific questions on homework problems or exams - such questions can be better addressed during our office hours. Email is not an efficient medium for teaching (it is easy to type a question, but can be very time-consuming to type coherent explanations, particularly without drawings and equations). Feel free to use email if you need logistical information such as time and place of an exam.

**Students with Disabilities:** Students with disabilities requesting accommodations should first register with the Disability Resource Center (<https://disability.ufl.edu/>) by providing appropriate documentation. Once registered, you will receive an accommodation letter to present to me at least two weeks before the exam.

**Academic Honesty:** Academic honesty and integrity are fundamental values of the University community. The UF Student Honor Code is at <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>. Your homework, quizzes, and exams should all reflect your own work, and you are expected to report any condition that facilitates academic misconduct.

**Online Course Evaluation:** You are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester; I will let you know when they are open. Summaries of these assessments are available at <https://evaluations.ufl.edu/results/>.

**Syllabus:** This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance your learning opportunities. Such changes will be communicated clearly, are not unusual, and should be expected.

**Overall:** Logistics and details aside, I'm delighted to have you in this class! I'm looking forward to spending the semester with you, and I want each of you to do well. The best advice I can offer is to keep up. If you get behind, catching up is tough – don't let yourself get into that situation. The TA and I are here to help you learn (and enjoy!) the material; if you're confused or not following the material, see us right away!

## CHM 2051 - General Chemistry II Honors – Spring 2021

### Lecture Schedule

DATE	DAY	Topic (Silberberg chapt)	4 <sup>th</sup> Period	5 <sup>th</sup> Period	Collect HW
1/12	T	Equilibrium (Ch. 17)	Course Intro, Lect 1	Problem Solving – Q, K	
1/14	Th	“	Lecture 2	Problem Solving – factors affecting equilibrium	
1/19	T	Acids, Bases (Ch. 18)	Lecture 3	Problem Solving – SA/SB	
1/21	Th	“	Lecture 4	Problem Solving – WA/WB	Homework 1
1/26	T	“	Lecture 5	Graphical Methods – Fractional composition	
1/28	Th	Acid-Base, Sol (Ch. 19)	Lecture 6	Problem Solving – Buffers	Homework 2
2/2	T	“	Lecture 7	Talham – Biomineralization	
2/4	Th	“	Lecture 8	Jeopardy I	Homework 3
2/9	T	“	Lecture 9	Review for Exam I	
2/11	Th	<b>Exam 1</b>			
2/16	T	Atmospheric Chemistry	Lecture 10	Problem Solving – Atmospheric Chemistry	
2/18	Th	“	Lecture 11	Problem Solving – Atmospheric Chemistry	Homework 4
2/23	T	“	Lecture 12	Guest Lecture TBA	
2/25	Th	“	Lecture 13	Delfino – Climate	Homework 5
3/2	T	$\Delta S$ , $\Delta G$ Equil'm (Ch. 20)	Lecture 14	Debate I - Climate Change	
3/4	Th	“	Lecture 15	No 2 <sup>nd</sup> period class	Homework 6
3/9	T	$\Delta S$ , $\Delta G$ Equil'm (cont'd)	Lecture 16	Problem Solving – Entropy/Free Energy/Equilibrium	
3/11	Th	Electrochem (Ch. 21)	Lecture 17	Jeopardy II	Homework 7
3/16	T	Electrochem (Ch. 21)	Lecture 18	Review for Exam 2	
3/18	Th	<b>Exam 2</b>			
3/23	T	Nuclear Chem (Ch. 24)	Lecture 19	Debate II - Nuclear Power	
3/25	Th	“	Lecture 20	Bova – Nuclear Medicine	Homework 8
3/30	T	Organic Chem (Ch. 15)	Lecture 21	Debate III – Fracking	
4/1	Th	“	Lecture 22	Mandernach-Sickle Cell Disease	Homework 9
4/6	T	Synth, Natural Polymers	Lecture 23	Sumerlin – Polymer Chemistry Research	
4/8	Th	“	Lecture 24	Jeopardy III	Homework 10
4/13	T	Mulligan – Human Molecular Genetics		Review for Exam 3	
4/15	Th	<b>Exam 3</b>			
4/20	T	Synth, Natural Polymers	Lecture 25	Jeopardy IV	
4/30	F	10:00 am – noon - <b>Comprehensive Final Exam (Optional)</b>			