

Chemistry 103: Basic General Chemistry (4.0 Credits)
Fall Semester 2020

UPDATED Monday, 8/24/2020, 10:52 AM

Instructor: Dr. Scott P. Jerome
Office: No in-person office appointments (see below)
Telephone: TBA (office)
Email: scott.jerome@alaska.edu
Lecture: MWF 3:30 – 4:30, REIC 201
Lab: REIC 246, Th 11:30 am – 2:30 pm
Th 2:45 pm – 5:45 pm

Office Hours: 2:00 – 3:00 M, via Zoom, or by appointment (Zoom, phone, etc.)

Prerequisites: Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Co-requisites: CHEM F103L.

Required Course Material: Text book, “Introduction to General, Organic, and Biochemistry” 11th edition or higher (Bettelheim, et al). A **calculator** capable of scientific notation is also required for this course and should be brought to both class and lab. Phones or programmable calculators are NOT permitted for exams.

Course Overview: Chemistry 103 (4.0 credit course) is the first semester of a two-semester series in general chemistry. This introductory chemistry survey course for health science majors and preparatory course for science majors will include the fundamentals of chemistry including historical and descriptive aspects. We will cover chapters 1 – 9 of the text. Topics include: measurement, energy and matter, periodic trends, chemical composition, chemical reactions, solutions, bond theory, phases, oxidation-reduction, and introduction to nuclear chemistry, problem-solving (applied mathematics), and special topics.

COVID-19: Students should keep up-to-date on the university’s policies, practices, and mandates related to COVID-19 by regularly checking this website:

<https://sites.google.com/alaska.edu/coronavirus/uaf/uaf-students?authuser=0>

Further, students are expected to adhere to the university’s policies, practices, and mandates and are subject to disciplinary actions if they do not comply.

Blackboard: <https://classes.uaf.edu>. Syllabus and student grades will be posted on the UAF Blackboard website. Time sensitive information and reminders will be sent occasionally to all students using blackboard, so it is important that you verify that your email address attached to Blackboard is correct and current. Lecture notes will be posted on course website.

Instructor’s expectations: Read the portion of the textbook that corresponds to the lecture before the class begins.

Exams: The two one-hour exams will cover material from the textbook chapters, additional materials presented in class, as well as associated concepts from the laboratory. *Exams cannot be*

*made up unless you arrange a time with me to take the exam **prior** to the scheduled exam **and** you have a valid excuse. You may be asked to document your excuse. In the event of an unforeseen emergency, contact me as soon as possible.*

Final Exam: The final exam will be held during finals week on Monday, December 7, 3:15 PM – 5:15 PM. The final exam will be cumulative: 50% from the final section of class and 50% from the previous sections.

Quizzes: There will be a take-home quiz after completing each chapter (quiz dates on the calendar are tentative and subject to change based on the pace of the class). Quiz questions will resemble exam questions and will prepare you for the type of questions that will be on the exam, as well as give you a way to assess your strengths and weaknesses from that chapter. There are no make-up quizzes and quizzes **may not** be turned in late. Questions from the quizzes often appear on exams. Quizzes are designed to enhance your understanding of the course material; as such, your work must be your own. **SCAN or TAKE A PICTURE of your quiz and email to me by the deadline OR drop a hard copy in my mailbox in the Chemistry Office, room 194, Reichardt by the deadline.**

Homework: Success in Chem 103 requires practice working through problems and applying the knowledge you have acquired. Higher achievement on exams is usually a direct result of time spent doing homework assignments in their entirety. We will work example questions in class but you should work more problems at home. I will give you suggested homework that corresponds to each chapter we cover in the book and an answer key. This will not be graded. *Questions from the suggested HW as well as problems done in class often appear on exams.*

Article discussion: Additional homework will include discussion on articles and links that will be posted on BB. Students are expected to participate in a discussion on each post. Most articles will be news articles and interest pieces relating to topic covered in class. These are graded assignments.

Examples of point allocation:

No participation	Partial Participation	Full Participation
Does not post a comment or response	<ul style="list-style-type: none"> - post is not original and only paraphrases what others have said. - Just says something like, “I agree...” or “good idea” in response to another student’s comments 	Your contribution does one of the following: <ul style="list-style-type: none"> - Is original and contributes to class discussion. - is insightful, interesting or thought provoking. - summarizes an aspect of the article or link that is important to you and why it is. - Evokes question or concerns about the content. - offers a response that instills genuine interest or expands on another students post.
0 %	50 %	100 %

Final Project: Students will prepare a final project throughout the semester and present the project to the rest of the class in the last weeks of the semester. The final project is intended to give you the opportunity to explain a core chemistry concept to the class (e.g. covalent bonding, atomic structure, states of matter, pH, nuclear chemistry etc.). A full list of available topics for you to choose from will be given well in advance to allow for proper preparation time. Your project core concept and “plan” must be cleared by me in advance. These projects are intended to spur your creativity. Innovative approaches and media are encouraged, such as Claymation, music videos, textiles, woodworking, ceramics, etc. Your final project will be presented in class and posted on our website. Your project should convey your core concept clearly to your classmates. No project may use and/or hazardous materials and/or methods. (When in doubt, as me first.)

Laboratory: The lab component of this class offers you the opportunity for hands-on investigation and to gain skills in scientific reasoning, experimental design, and use of chemicals and laboratory equipment. The labs are conducted by a graduate teaching assistant (TA) who will have specific office hours. Lab reports will be handed in each week, to be graded and returned by the teaching assistant. **Any questions regarding your lab should be directed to your TA.** Eleven experiments are scheduled for the semester. The laboratory portion of your grade (100 points) will be based upon the average of your ten best lab grades. There **are no make-up labs** scheduled and **students must attend at least 8 labs in order to pass the course.** The first scheduled lab includes a safety review. **STUDENTS MUST ATTEND THE SAFETY REVIEW IN ORDER TO STAY IN THE COURSE.**

Computer access (COVID restrictions may apply): Currently, Department of Computing and Communications (DCC) maintains two open labs on campus: the Bunnell Lab and the Node (Rasmussen library). The Node has 24-hour access.

Support Services: There are a large number of resources available to help students that may be having difficulty in the course or with a particular topic. TAs and I both hold regular office hours. You may attend office hours for ANY chemistry TA; you are not restricted to the hours for the TA for your lab. Students can also make an appointment to see me for help if office hours do not fit with the student’s schedule. Additionally, the Department of Chemistry & Biochemistry offers free tutoring services. Support may also be obtained through the University of Alaska Library system, online resources. Additional services are available through Student Support Services (<http://www.uaf.edu/sssp/>) at UAF.

Disabilities Services:

We will work with the Office of Disabilities Services (<http://www.uaf.edu/disability/>) to provide accommodations for students with disabilities. If you have a disability and require special assistance, please contact the instructor as soon as possible. Students with disabilities must provide documentation of the disability and a written statement indicating any special arrangements that need to be made.

Cheating/Academic Dishonesty: The Chemistry & Biochemistry Department Policy on Cheating is: *“Any student caught cheating will be assigned a course grade of F. The student’s academic advisor will be notified of this failing grade and the student will not be allowed to drop*

the course.” The Department considers performing unauthorized “dry labs” as cheating. Partnering during the lab may be acceptable but lab reports must show your own calculations and ideas.

Amending this Syllabus: The instructor may make changes to this syllabus. Any changes will be clearly communicated via email sent to your **UAF e-mail account and posted on Blackboard.**

Grading:	Quizzes	100 pts
	Article discussion	100 pts
	Laboratory	100 pts
	Exam (2)	200 pts (100 pts each)
	Final Project	100 pts
	<u>Final Exam</u>	<u>100 pts</u>
	Total	700 pts (max.)

Letter Grade	Percentage Grade	Total Points
A+	94.5 - 100	661.5 - 700
A	90.5 - 94.4	633.5 – 661.4
A-	87.5 - 90.4	612.5 – 633.4
B+	84.5 - 87.4	591.5 – 612.4
B	80.5 - 84.4	563.5 – 591.4
B-	77.5 - 80.4	542.5 – 563.4
C+	74.5 - 77.4	521.5 – 542.4
C	70.5 - 74.4	493.5 – 521.4
C-	67.5 - 70.4	472.5 – 493.4
D+	64.5 - 67.4	451.5 – 472.4
D	60.5 - 64.4	423.5 – 451.4
D-	57.5 - 60.4	402.5 – 423.4
F	57.4 or lower	401.8 or lower

Tentative Schedule – Subject to Change

Quizzes are due at the BEGINNING of the class period.

Day	Date	Chapter	Topic	Lab
M	24-Aug		Syllabus, Intro, Website	NO LAB
W	26-Aug	1	Scientific method, Measurements, conversion factors	
F	28-Aug	1	States of matter, Energy,	
M	31-Aug	1	Density, Specific gravity, heat; Take-home quiz #1	Lab Introductions (online)
W	2-Sept	2	DUE: Take-home quiz #1 ; Dalton's theory, atoms	
F	4-Sept	2	Periodic table	
M	7-Sept	No Class	Labor Day	
W	9-Sept	2	Electron configurations; Take-home quiz #2	Exp. 1 Safety Lab
F	11-Sept	3	DUE: Take-home quiz #2 ; Octet rule, anions, cations, ionic bonds	
M	14-Sept	3	Covalent bond	
W	16-Sept	3	Lewis structures, resonance	Exp. 2 Lab Measurements
F	18-Sept	3	Polarity; Take-home quiz #3	
M	21-Sept	4	DUE: Take-home quiz #3 ; Moles	
W	23-Sept	4	Balancing rxn, stoichiometry	Exp. 3 Lewis Str.
F	25-Sept		Exam Review	
M	28-Sept	Chapters 1-3	Exam I	
W	30-Sept	4	Limiting step, yield	Exp. 4 Density & Stoichiometry
F	2-Oct	4	Redox reactions, heat of reaction; Take-home quiz #4	
M	5-Oct	5	DUE: Take-home quiz #4 ; States of matter, gases	Exp. 5 Moles and Formulas
W	7-Oct	5	Avogadro's law	
F	9-Oct	5	Intermolecular forces	

M	12-Oct	5	Liquids, solids, phase changes; Take-home quiz #5	Exp. 6 Polar Compounds
W	14-Oct	6	DUE: Take-home quiz #5 ; Solutions, solubility	
F	16-Oct	6	Concentration	
M	19-Oct	6	Water as a solvent	Exp. 7 Aq Chem Reactions
W	21-Oct	6	Colloids and colligative properties; Take-home quiz #6	
F	23-Oct	Happy Mole Day!	DUE: Take-home quiz #6; Exam Review	
M	26-Oct	Chapters 4-6	Exam II	Exp 8 Kinetics
W	28-Oct	7	Reaction rates	
F	30-Oct	7	Chemical equilibrium	
M	2-Nov	7	Le Chatelier's principle; Take-home quiz #7	Exp. 9 Chem Equilibrium
W	4-Nov	8	DUE: Take-home quiz #7 ; Acids and bases	
F	6-Nov	8	Conjugate acids and bases	
M	9-Nov	8	pH, titrations	Exp 10 pH and Buffers
W	11-Nov	8	Buffers; Take-home quiz #8	
F	13-Nov	9	DUE: Take-home quiz #8 ; Radioactivity, types of	
M	16-Nov	9	Half-life, nuclear medicine	Exp 11 Half-Life activity
W	18-Nov	9	Fusion and fission; Take-home quiz #9	
F	20-Nov		DUE: Take-home quiz #9 ; Review	
M	23-Nov		Final Presentations	No Lab
W	25-Nov	No Class	Thanksgiving Break	
F	27-Nov	No Class	Thanksgiving Break	
M	30-Nov		Final presentations	No Lab
W	2-Dec		Final presentations	
F	4-Dec	Last day of class	Final Exam Review	
X	9-Dec	2:30 pm – 5:30 pm	Final Exam	No Lab

