CHEM 103X Basic General Chemistry

- Description: CHM 103X is the first of a two semester sequence in general chemistry that seeks to introduce the basic concepts of the composition and behavior of matter, as well as prepare students to go onto either CHM 104X (Beginnings in Biochemistry) or CHM 105X (General Chemistry).
- Lecture: Mon, Tues, Weds, Thurs, Fri 10:00 a.m. 11:30 a.m. Room 203 Reichardt Building
- Instructor: Dr. Ed Treadwell Office: Room: tba Email: <u>ffemt@uaf.edu</u> Office Hours: Mon, Weds, Fri 8:30 a.m. - 9:30 a.m. Tues, Thurs 11:30 a.m. - 12:30 p.m. other hours gladly considered upon request
- Text: Introduction to General, Organic, and Biochemistry, 8th ed. by Bettelheim, Brown, Campbell, and Farrell there is an accompanying solutions manual which may be useful you will also need a calculator, nonprogrammable and capable of expressing scientific notation (such as 9.42x10⁻⁸)
- Laboratory: This meets Mon and Weds from.12:30-4:10 pm in room 246 Riechardt Building. You will need the lab manual – "*Experiments in General Chemistry 103*" – which will be distributed on the first day of laboratory, as well as safety goggles.
- Homepage: Blackboard will be used for this course, and can be accessed by going to <u>https://classes.uaf.edu</u> and then selecting *CHM F103X*.

Course Policies:

- Attendance: Though attendance will not be taken nor count towards your grade, this is a lecture-based course and the lecture/discussion in class will help you to understand the material. By missing class you will miss a significant amount of material, and some of the material covered in class cannot be found in the book. If you do have to miss a class, be sure to get the notes from a classmate. I will not provide notes for you.
- 2. Assigned reading: On page 3 of the syllabus are the assigned readings for the course. You will find the material much easier to understand if you come to class having read the appropriate sections in your textbook. Do not worry if you don't understand all you've read, but you should be familiar with what you've read. I will expect that you are doing the reading.
- 3. Exams: Exams will be given in class, and will only be graded if you attend the entire class period. If you know you cannot make an exam, please let me know as soon as possible **BEFORE** the day of the exam to make the necessary arrangements. Make-up exams will only be given in cases of serious illness, emergency, or University-related activities. A written verification from a medical professional or University representative must be presented before a make-up exam will be given, and timely notification of your situation is expected once you are settled.

- 4. Homework: Graded homework assignments will be passed out throughout the course. In addition, there are also suggested homework problems from the textbook that will not be collected. However, the best way to learn chemistry is to try and apply what you've learned, and homework problems are a great way to test your mastery.
- 5. Laboratory: There is an accompanying laboratory portion for this class, which meets two days a week. You must attend the laboratory as well as the lecture in order to receive credit for this class. It is expected that you will take the laboratory seriously and try as hard to do your best in the lab as you do in the lecture. The laboratory portion will be covered and graded by a graduate student teaching assistant who will report to me.
- 6. You are responsible for all announcements made in class, whether you are present or not.
- 7. Disability: If you have a documented disability from the Disability Services office, please discuss academic accommodations with me as soon as possible.
- 8. Conduct Code: All aspects of the student conduct code are expected to be followed without any prompting or reminder from the instructor. This especially pertains to instances of cheating, both in the lecture and laboratory portions of the course, which will NOT be tolerated at all by this instructor. The Chemistry Department's policy 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.

Additionally, the UAF Honor Code states that

Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless permission is granted by the instructor of the course. Only those materials permitted by the instructor may be used to assist in quizzes and examinations. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses, and other reports. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors. Violations of the Honor Code will result in a failing grade for the assignment and, ordinarily, for the course in which the violation occurred. Moreover, violation of the Honor Code may result in suspension or expulsion.

Note also that you should have all cell phones turned off and put away during class, and that I will not hesitate to confiscate them for the class period if they are a distraction or disruption.

 Course grade: Your grade will be determined by your score on the items on the next page. A standard grading scale (90% and above = A, 80-89.4% = B, 70-79.4% = C, 60-69.4% = D) is expected to be used.

Assistance:

I want you to do well and learn as much as possible in this course. Please do not hesitate to drop by my office with questions or for help with assignments, or to send me correspondence by email/Blackboard as needed. Your laboratory teaching assistant is also an excellent source of assistance

Course Point Distribution:

Homework (6 @ 16 pts each)	100 points
Exams (3 @ 100 points each)	300 points
Lab Reports	100 points
Final Exam (100 points)	100 points
Total Points	600 points

A description of each of the components is given below. Homework:

There will be a total of 7-12 short homework assignments in the course, given at the end of one class period and usually due at the beginning of the next class period. The best six homework assignments will count towards your final grade, which means you will be able to drop your worst homework grades if you hand in more than 6 homework assignments. Late homework WILL NOT be accepted under any circumstances.

You are free to, and I encourage to, work on the homework with others. However, the material you turn in must be yours – <u>written by you in your words</u>. Any case of plagiarism (the direct copying of someone else's work) is a violation of the academic code and will be treated accordingly. Additionally you will need to understand the homework in order to do well on the exams.

Exams:

There are three in-class exams which will cover the material discussed previously, and the sections that will covered on the exam will be announced in class/on Blackboard several days beforehand so that you can best prepare for the exam. The exams will be part multiple choice, part fill in the blank/matching, and part short answer / problem solving. The best way to prepare for an exam is to read over your notes as well as your homework, to try the homework problems in the book, and most of all to UNDERSTAND the material. Pure MEMORIZATION of the material or of the answers to homework problems will most likely **not** earn you a high grade on the exam.

Lab Reports::

The laboratory component of this course comprises of eight experiments, each with a lab report that will be graded and returned by the teaching assistant. Only the best 7 laboratory reports are used in calculating your final grade. Note that if you hand in less than six laboratory reports, you will automatically fail the course, no matter what your grade from the lecture portion is. Also you need to be present and actually carry out the experiment in order for a report to be accepted/graded. Due to the compressed schedule, there will be no make-up labs and you should not plan on missing any of the lab days. Late reports are highly discouraged and significant point deductions will be assessed for late reports.

During the first week of labs, there will be a safety review. Your attendance for this is mandatory, and you will not be allowed to carry out any experiments unless you were present for this safety review.

Final Exam:

There is a cumulative final exam, given on the last day of the course. The format will resemble that of the three in-class exams, as will the material. There will be some questions on the new material learned since Exam III included on the final exam.

(50% of total grade)

(17% of total grade)

(17% of total grade)

(17% of total grade)

Tentative Class Schedule*

Week 1 (M	lay 24 th to 28 th)			
Mon.	May 24 th	Scientific method, Measurements	1.1 – 1.4	
Tues.	May 25 th	Conversions, Matter, Energy	1.5 – 1.9	
Weds.	May 26 th	Matter and Atoms	2.1 – 2.4	
		Experiment 1 Safety		
Thurs.	May 27 th	Periodic Table, Electron Configuration	2.5 – 2.8	
Fri.	May 28 th	Octet Rule, Cations and Anions	4.1 – 4.3	
Week 2 (M	Week 2 (May 31 st to June 4 th)			
Mon.	May 31 st	University Holiday		
Tues.	June 1 st	Ionic and Covalent Bonds	4.4 - 4.6	
Weds.	June 2 nd	Covalent Bonds, Resonance	4.7 – 4.9	
		Experiment 2 Measurements		
Thurs.	June 3 rd	VSEPR, polarity	4.10 - 4.11	
Fri.	June 4 th	EXAMI		
Week 3 (Ju	une 7 th to 11 th)			
Mon.	June 7 th	Reactions, MWs, and Moles	5.1 – 5.3	
		Experiment 3 Lewis Structures		
Tues.	June 8 th	Balancing Chemical Reactions	5.4 – 5.5	
Weds.	June 9 th	Ionic Equations	5.6	
		Experiment 4 Empirical Formula		
Thurs.	June 10 th	Redox Chemistry	5.7	
Fri.	June 11 th	Heat of Reaction, Gases	5.8, 6.1 – 6.3	
Week 4 (J	une 14 th to 18 th)	· · · · · · · · · · · · · · · · · · ·	·	
Mon.	June 14 th	Gases (cont'd)	6.4 – 6.7	
Tues.	June 15 th	EXAM II		
Weds.	June 16 th	Liquids, Solids	6.8 - 6.9	
Experiment 5 Qualititative Analysis				
Thurs.	June 17 th	Phase Changes	6.10	
Fri.	June 18 th	Solutions	7.1 – 7.4	
Week 5 (June 21 st to 25 th)				
Mon.	June 21 st	Concentrations	7.5	
		Experiment 6 Spectroscopy		
Tues.	June 22 nd	Water, colloids	7.6 – 7.8	
Weds.	June 23 rd	Reaction rates	8.1 – 8.4	
		Experiment 7 Airbags		
Thurs.	June 24 th	Equilibrium	8.5 – 8.8	
Fri.	June 25 th	Acids and Bases- Definitions	9.1 – 9.2	
Week 6 (June 28 th to July 2 nd)				
Mon.	June 28 th	EXAM III		
Tues.	June 29 th	Acid Dissociation constants	9.3	
Weds.	July 1 st	Predicting Acid-Base Reactions	9.4 – 9.5	
	2	Experiment 8 – Acids, Bases, Buffers		
Thurs.	July 1 st	Properties of Acids and Bases	9.6 - 9.8	
Fri.	July 2 nd	FINAL EXAM		

* though the exact day in which a topic is discussed may change, the exams will be on the days they are shown on the schedule (they will not be moved)