General Chemistry 105X

Syllabus

TITLE: General Chemistry I
NUMBER: 105X
CREDITS: 4
PREREQUISITES: Placement in WRTG F111X; placement in MATH F151X; or a B- or better in CHEM F103X; or permission of instructor and department.
COREQUISITE: CHEM F105L.
LOCATION: Reichardt 201

INSTRUCTOR: Dr. Arianna Demmerly
OFFICE LOCATION: Reichardt 184
OFFICE HOURS: T/Th 4:30-5:45 pm or by appointment
EMAIL ADDRESS: ademmerly@alaska.edu

COURSE DESCRIPTION

Chemistry 105X is the first semester of a two-semester series in general chemistry. This course is an introduction to general chemistry and explores topics to a much greater depth than preparatory courses. Topics include: measurement, energy and matter, periodic trends, chemical composition, chemical reactions, solutions, bond theory, gases, thermodynamics, and problem-solving (applied mathematics). Students must be enrolled in both CHEM F105X and CHEM F105L to receive full credit.

Chemistry is a wonderful science that encompasses a broad range of areas, from understanding the functional process of biological systems to determine the mechanisms that underlie geological phenomena in the earth's crust. This course is intended for students who are interested in enriching their lives with chemistry and enhancing their critical thinking skills. The study of chemical science is valuable in not only fulfilling UAF's core science credits, but also in introducing students to proper laboratory techniques and challenging a student's critical thinking

COURSE GOALS

Supplementing the course catalog, the course goals are to continue to build the student's skills solving chemical problems, reading critically, formulating questions, completing laboratory experiments and communicating information assimilated throughout the course by completing exams. Class conduct should be professional as well as respectful of the rights of other students to constructive learning experience.

STUDENT LEARNING OUTCOMES

As a result of successfully passing General Chemistry F105X, the student will be able to…

(1) understand and use the scientific method for investigating problems,
(2) understand the relationship between public policy and science, and
(3) solve chemical problems related to the topics covered in this course.

COURSE READINGS/MATERIALS

The following materials are *required* for the course and can be purchased in the UAF bookstore or elsewhere:

- *Chemistry an Atoms Focused Approach* 2nd Ed. by Gilbert.
  Published by Norton & Company
  ISBN 978-0-39-361405-3
- Experiments in General Chemistry 105X: A Laboratory Manual
  (free! on Blackboard and updated weekly)
- A non-programmable non-graphing scientific calculator is required for each exam. The Department of Chemistry and Biochemistry does not provide calculators for exams, the student *must* provide their own. A ~$10 calculator that has the standard arithmetic keys as well as 10^x, LOG, EXP or e^x, LN and x^y functions is sufficient. Programmable calculators are not permitted.

The following materials are optional:

- American Chemical Society (ACS) General Chemistry Study Guide
- Chemistry 12th Ed. Student Solutions Manual by Cruickshank
- Chemistry 12th Ed. Student Study Guide
- Essential Algebra for Chemistry Students 2nd Ed. by Ball

REQUIREMENTS FOR COURSE

Students must have regular access to a computer and the Internet to access online materials in Blackboard. Students will be expected to download course material as well as upload assignments.

HOMEWORK

Homework problems are assigned using end of chapter questions from the textbook in coordination with Smartwork5. Homework assignments for the week will be available on Tuesdays at midnight and previous homework's due Tuesdays at 11:59 pm on the system clock.

It is recommended that students promptly register and log in to Norton through Blackboard as homework will be assigned within the first-class period. Please remember that Smartwork5 is a free software and has latency for updating scores. It is recommended that you wait 24 hours after the due date for your homework grade to show correctly. If you are having issues with homework or logging in to reach your assignments, then contact the Norton helpdesk at support.wwnorton.com.

WORKSHEETS AND ACTIVITIES

Worksheets and/or Activities are assigned based upon the chapter content and learning objectives. As such, some weeks contain activities, which involve interacting with a simulation or a video and then answering questions pertaining to that simulation or video. Worksheets are either BlackBoard auto graded problems or a pdf that you will need to download and fill out before turning into Gradescope. These are due either on Sundays or Thursdays by 11:59 pm AKST.

Gradescope is a service that we provide for uploading your work. It allows for quick and efficient grading. Instructions for getting started will be provided in BlackBoard.

INSTRUCTIONAL METHODS

Learning the topics presented in this course can be accomplished through several different methods. This will include reading the textbook, viewing the provided lecture series for each week, solving problems, completing worksheets and activities, participating in discussions, taking exams, and actively engaging in the laboratory component of the course. Learning the scientific method will be accomplished by performing the laboratory experiments, keeping a laboratory notebook and discussing results with your classmates in the discussion boards.

COURSE POLICIES

Laboratory

Weekly laboratories help solidify concepts and gain hands on experience investigating chemical principles and theories. Students will gain skills in scientific reasoning, experimental design, use of chemicals, as well as proper waste disposal techniques laboratory apparatus. Procedures for the weekly lab will be available on Blackboard. Lab reports are due the following week and graded by the laboratory assistant. Completing the laboratories is *mandatory* for credit. The laboratory portion of the student's grade will be based upon the average of the student's **best 10 lab reports**. Students may miss one lab with no impact on their lab grade, lack of attendance or failure to complete 8 laboratories will result in a *failing* grade for the course. If the student has questions or concerns please discuss them with Emily Reiter, Laboratory Director. Late reports may be accepted with penalized scores, excluding the last report of the semester which will not be accepted late. **The first lab of the semester includes a safety review and must be completed to continue in the course**.

Homework

This pertains to Smartwork 5, Worksheets and Activities. Late work for these is accepted up to three days after the due date. Late work contains a late penalty of 25% for the first day, 50% for the second day, and 75% for the third day. Late work past three days will receive an automatic 0. These policies are set in stone except under extenuating circumstances such as illness, death in the family or a personal calamity.

Exams

The student is responsible for all information from text, lecture, homework, worksheets and assigned study questions. Any of these sources will be used to construct exams questions. Two in person practice exams (one standard 3x5 note card is allowed for practice exams), a one-hour Mid-term exam and a cumulative final exam will be given as per the course and UAF finals schedule. The final exam will be a *curved* two hours 70 item multiple choice exam provided by the American Chemical Society Examinations Institute. The recommended review text (see above) is an excellent source of information to assist students in practicing and preparing for the final exam. No use of a cell phone, pda, graphing calculator or otherwise will be allowed during the exam.

Attendance

Being actively engaged with this course is highly recommended. With that, there are times when a student is unable to participate due to personal reasons. If an absence is unexpected (illness, family or personal calamity) talk with Dr. Demmerly at the earliest possible opportunity.

As part of this course, you will be asked to participate in public spaces on the internet. For example, you may be asked to write a blog post, comment on someone else's blog post, or post to online services like YouTube. You will create an account and a screen

name for each of these services; it's important to understand that the screen name you choose will be public to the world. If you do not wish to use your real name, we suggest using your university username (your login username for Blackboard or you may choose to use a nickname alias instead Contact your instructor directly if you have questions or concerns.

EVALUATION POLICIES

Grades will be posted to Blackboard, which can be accessed from the UAF homepage. Class grades will only be adjusted in favor of the students (ex: unfair questions on tests) Tentative Points and Letter Grades:

	Points	Grade Range	Letter Grade
Midterm	15%	100 - 90%	A
Final Examination	15%	89 - 80%	B
Laboratory	20%	79 - 70%	C
Homework	15%	69 - 60%	D
Activities	10%	59% or less	F
Worksheets	10%		
Discussion	5%		
Practice Exams	10%		
Total	100%		

"C" (including C+ and C-) indicates a satisfactory level of acquired knowledge and performance in completion of course requirements.

C– (1.7) is the minimum acceptable grade that undergraduate students may receive for courses to count toward the major or minor degree requirements, or as a prerequisite for another course. A minimum grade of C (2.0), however, MAY be required by specific programs for prerequisite and/ or major / minor courses. Please consult specific program listings in the UAF Catalog.

C– (1.7) is the minimum acceptable grade required for all Core (X) Courses.

"D" (including D+ and D-) indicates a minimal level of acquired knowledge and minimal performance in completion of course requirements. This grade does not satisfy requirements for courses in the major, minor, Core, or graduate programs.

ACADEMIC INTEGRITY

The Chemistry and Biochemistry Department *Policy on Cheating* states the following:

Any student caught cheating will be assigned a course grade of F. The students academic advisor will be notified of this failing grade and the student will not be allowed to drop the course.

Examples of cheating include, but are not limited to:

- Copying another student's answer while taking a quiz or exam
- Copying another student's answer in response to in-class questions
- Using another student's clicker for any reason
- Using another student's work while writing lab reports

Students must also adhere to UAF policies, the student code of conduct as well as the University of Alaska *Honor Code* which states in part:

> *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.*

EXPLANATION OF NB/I/W GRADES

Instructor Withdrawals: The instructor reserves the right to withdraw any student from class for any of the following reasons:

(1) The student has not participated significantly as of March 29;
(2) The student has missed more than three labs as of March 29;
(3) The student does not work safely in the laboratory, and his or her continued presence in this course may pose a safety hazard for the student or for others.

Freshman Progress Reports: Freshman progress reports will be based on all graded materials, excluding lab grades, up to and including February 22.

Incompletes: A grade of "incomplete" is assigned only when a student misses the final exam for a very good reason, such as a medical problem, a death in the family, etc

INSTRUCTOR RESPONSE TIME

I am generally quick to respond to emails (within 6 hours) except between10 pm to 2 am AKST and on weekends. On weekends, response time is usually within 24 hours. Graded material is usually returned one week after posted due date, and no later than 2 weeks.

HOW TO CHECK YOUR GRADE

To check your grades for assignments/quizzes and find comments from your instructor, click on the My Grades link in the sidebar menu. All assignments and any due dates are listed. If your instructor has left overall assessment comments, Click on the speech bubble icon to view overall comments and feedback.

If the score is for a test or quiz, the title of the test is a link. Then click on the check mark or your score to see results and feedback.

If the score is for an assignment, the title of the assignment is a link and by clicking this link you'll be taken to your submission, grade and comments.

If you see a green exclamation point, your assignment has not been graded yet.

EXPECTATION OF STUDENT EFFORT

Students should expect to spend 10-15 hours per week on this class. Students are expected to complete the weekly assignments by their due dates. If circumstances arise that cause you to need extra time on any assignment(s), email your instructor for guidance. Extensions of due dates may be granted, but your instructor expects to be informed in advance if you are not able to submit your assignment on time. (Emergency situations will be dealt with as needed.) Students are expected to maintain a working backup plan to be implemented in the event of a computer malfunction or an interruption of their normal Internet service during the course.

STUDENT PROTECTIONS AND SERVICES STATEMENT

Every qualified student is welcome in my classroom. As needed, I am happy to work with you, disability services, veterans' services, rural student services, etc to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if I notice or am informed of certain types of misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: www.uaf.edu/handbook/

DISABILITIES AND SPECIAL ACCOMMODATIONS

Students with a physical or learning disability are required to identify themselves to the Disability Services office (http://www.uaf.edu/disability/),Email: uaf-disabilityservices@alaska.edu, Phone: 474-5655 or TTY: 474-1827, located in room 208 in the Center for Health and Counseling. The student must provide documentation of the disability. Disability Services will then notify the instructor of special arrangements for taking tests, working homework assignments, and doing lab work

SUPPORT SERVICES

Go to the Student Handbook (www.uaf.edu/handbook) for things like:
academic advising, tutoring, library and academic support, disability services, computing and technology, veteran and military support, academic complaint and appeals, late withdrawals, “classroom” behavior expectations and more.

UAF eCampus Student Services helps students with registration and course schedules, provides information about lessons and student records, assists with the examination process, and answers general questions. Our Academic Advisor can help students communicate with instructors, locate helpful resources, and maximize their distance learning experience. Contact the UAF eCampus Student Services staff at

907.455.2060 or toll free 1.800.277.8060 or contact staff directly with our directory listing**.**

UAF Help Desk
Go to http://www.alaska.edu/oit/ to see about current network outages and technology news.
For technical questions, contact the Help Desk at:

- e-mail at helpdesk@alaska.edu
- phone: 450.8300 (in the Fairbanks area) or 1.800.478.8226 (outside of Fairbanks)

Effective Communication
Students who have difficulties with oral presentations and/or writing are strongly encouraged to get help from:

- UAF Department of Communication's Speaking Center (907.474.5470, speak@uaf.edu)
- UAF English's Department's Writing Center (907.474.5314, Gruening 8th floor)
- CTC's Learning Center (604 Barnette st, 907.455.2860).

NOTICE OF NONDISCRIMINATION

UA is an AA/EO employer and educational institution and prohibits illegal discrimination against any individual: www.alaska.edu/titleIXcompliance/nondiscrimination.

Week	Date	Lesson	Activity/Worksheet	Topic	HW
1	*Aug-27* *Aug-29*	*1.1-1.5* *1.6-1.9*	**Activity:** States of Matter (BB)	*Atoms and Property of Matter* *Units and Precision/Accuracy*	**Ch 1- Open** Activity Due SU
2	*Sept-3* *Sept-5*	*2.1-2.3* *2.3-2.6*	**Activity:** Build an Atom (BB) **Worksheet 1:** Nuclide Symbols (BB) **Worksheet 2:** Conversion and Mols (BB)	*Atom History and Nuclides* *Moles and Molar Masses*	**Ch 1 Due T** Activity Due TH Worksheet 1 Due SU Worksheet 2 Due SU
3	*Sept-10* *Sept 13*	*3.1-3.4* *3.4-3.8*	**Worksheet:** Quantum Numbers (BB)	*Light* *Bohr Model*	**Ch 2 Due T** Worksheet Due TH
4	*Sept-17* *Sept-19*	*3.8-3.12* ***Practice Exam 1***	**Activity:** Interactives the Periodic Table with Electron Configuration (BB)	***Group Exam 1 Chp 1-3***	**Ch 3 Due T** Activity Due TH
5	*Sept-24* *Sept-26*	*4.1-4.3* *4.4-4.6*	**Worksheet:** Lewis Structures **Discussion**: Polarity	*Chemical Bonding*	Worksheet Due TH Discussion Due SU
6	*Oct-1* *Oct-3*	*4.6-4.9* *5.1-5.4*	**Activity:** Molecule Shapes	*Bonding Theories:VSEPR*	**Ch 4 Due T** Activity Due SU
7	*Oct-8* *Oct-10*	*5.4-5.7* *6.1-6.3*	**Activity**: Molecule Polarity **Worksheet:** MO **Discussion:** Aurora Colors	*Bonding Theories:MO* *Intermolecular Forces*	Activity Due T Worksheet Due SU Discussion Due SU
8	*Oct-15* *Oct-17*	*6.3-6.5* ***Midterm***	**Activity:** Molecule Polarity basics **Worksheet:** Intermolecular Forces **Discussion**: Explain an experiment	*Solubility and Phase Diagrams* ***Midterm CHP 1-5***	**Ch 5 Due T** Activity Due T Worksheet Due TH Discussion Due SU

9	*Oct-22* *Oct-24*	*7.1-7.2* *7.3-7.4*	**Activity:** Balancing Chemical Equations **Discussion:** How Do you know an equation is balanced?	*Stoichiometry*	**Ch 6 Due T** Activity Due TH Discussion Due SU
10	*Oct-29* *Oct-31*	*7.5-7.7* *8.1-8.4*	**Activity:** Reactants, Products and Leftovers **Worksheet:** Molecular and Chemical Formulas	*Aqueous Solutions*	Activity Due TH Worksheet Due SU
11	*Nov-5* *Nov-7*	*8.4-8.6* *8.6-8.8*	**Worksheet 1:** Acid-Base **Worksheet 2:** Concentration Calculations	*Aqueous Solutions II*	**Ch 7 Due T** Worksheet 1 Due TH Worksheet 2 Due SU
12	*Nov-12* *Nov-14*	*9.1-9.4* *9.5-9.9*	**Worksheet:** Redox Reactions **Discussion:** Solubility Rules Flashcards	*Thermochemistry contd* ***No Class***	**Ch 8 Due T** Worksheet Due TH Discussion Due SU
13	*Nov-19* *Nov-21*	***Practice Exam 2*** *10.1-10.3*	**Worksheet:** Thermochemistry **Discussion:** Natural Stone and Heat capacity	***Practice Exam 2 Chp 6-9***	**Ch 9 Due T** Worksheet: Due TH Discussion: Due SU
14	*Nov-26* *Nov-28*	*10.3-10.5* ------		*Pressure and Gas Laws* *Thanksgiving Holiday*	
15	*Dec-3* *Dec-5*	*10.5-10.10* *Review*	**Activity 1**: Gas Properties **Activity 2:** Gas Laws	*Density of gases and chemical reactions*	**Ch 10 Due T** Activity 1 Due TH Activity 2 Due SU
-	*Dec-12*	***Final Exam***		*5:45-7:45pm*	