

General Information

<i>Instructor:</i>	Dr. Scott Jerome	<i>Office Location:</i>	Reichardt 182
<i>Email:</i>	spjerome@alaska.edu (best way to reach me)	<i>Office Hours:</i>	Tuesday, 1:00 pm – 2:00 pm, via Zoom. Wednesday, 1:00 pm – 2:00 pm via Zoom or in person. Other hours by appointment.
<i>Telephone:</i>	(907) 474-5621 office	<i>*Course Type:</i>	Lecture: In person Laboratory: In person
<i>**Course Location:</i>	Reichardt 201	<i>Meeting Time:</i>	M, W, F, 11:45 am – 12:45 pm (lecture)

Prerequisites

Placement in WRTG F111X; placement in MATH F151X; or a B- or better in CHEM F103X

Co-requisites

Co-requisite: CHEM F105L. Students must be enrolled in both CHEM F105X and CHEM F105L to receive full credit.

Course description

CHEM F105X-F106X, together, constitute the standard one-year engineering and science-major general chemistry course with laboratory. Major subjects include measurements, calculations, atomic and molecular structure, gas laws, stoichiometry, an introduction to organic chemistry, chemical reactions and related energy changes.

In-depth Course description

Chemistry is sometimes called the Central Science. The reason for this is that chemistry extends into many scientific disciplines. In order to be proficient in any science, some basic knowledge of chemistry is required. General Chemistry begins with a discussion of the building blocks of molecules and substances with a focus on atoms in the Periodic Table. We will then move into chemical bonding, intermolecular forces, reaction chemistry, thermochemistry and finally the behavior of gases. **It is the intent of the course that you will build on what you learn as we move through these topics.**

Course Readings/Materials

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

1. *Chemistry: An Atoms-Focused Approach*, 3rd edition, Gilbert et al.



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Complete Book - ISBN: 978-0-393-67402-6 (Hardcover), 978-0-393-69744-5 (ebook).

2. Norton Smartwork 5 access for *Chemistry: an atoms-focused approach*, 3rd edition
3. Experiments in General Chemistry 105X: A Laboratory Manual (free! Handouts can be printed from Blackboard, updated weekly)

A note from the publisher: "Students can order our low-cost Ebook directly from our website: <https://digital.wwnorton.com/atoms3>. That would be 720 day access for only \$79.95, and that price includes SmartWork."

Technology requirements

A **University of Alaska email address is required for all communication in the class.** This also provides access to the Blackboard system for individual scores and grades.

Students must have regular **access to a computer and the Internet to access online materials in Blackboard.** Students will be expected to complete homework and using Smartwork 5 through Blackboard AND check for Bb regular announcements. **DO NOT** access Smartwork 5 directly – you must access **Smartwork 5 through Blackboard** to complete and submit homework. The lecture slides for this course will be posted in Blackboard. Quizzes will be administered through Blackboard.

Smartwork 5 Homework problems will be assigned using questions from the textbook in coordination with the Smartwork 5 program. **All students need to purchase the access code and promptly register through Blackboard (free with your new textbook purchase).**

A **non-programmable, non-graphing scientific calculator** is required for each exam. A \$15 +/- calculator will meet the needs of this course as long as it has standard arithmetic keys as well as 10x, LOG, EXP or ex, LN and xy functions. (I use the Texas Instruments TI-30XS calculator. It costs about \$16.00 at major retailers.)

Course Goals

The primary goal is for you to be able to interpret, explain, and predict the physical and chemical properties of substances based on their atomic and molecular structures. We also want you to understand how chemistry is linked to other disciplines as well as your life. Another goal is to illustrate how chemistry is all around you, in the air you breathe and the food you eat, and how understanding chemistry will help you solve problems in this course and beyond.

The course will also focus on problem-solving. Your goal should be to develop strategies for solving chemical problems. Your approach should be to study and know the facts, and then apply that knowledge to new situations in chemistry.

Finally, chemistry is an experimental science. The laboratory should illustrate and reinforce concepts learned in the lecture.

Student Learning Outcomes

Specific Learning Outcomes are defined for each chapter in the textbook; please refer to the first page of each chapter.

General Learning Outcomes for the Course are:

- Demonstrate a knowledge of basic chemical concepts, such as stoichiometry, states of matter, atomic structure, molecular structure and bonding, thermochemistry, equilibria, and kinetics.
- Demonstrate strength in quantitative chemical problem solving including mathematical skills.
- Predict the physical and chemical properties of substances, including reactions, based on their atomic, molecular and electronic structure.
- Use the periodic table to explain the electronic and nuclear properties of elements.
- Demonstrate competency in basic laboratory skills and the analysis of data.
- Demonstrate how chemistry is linked to other scientific disciplines.
- Place the development of theories and hypotheses of chemistry in a historical context.

Instructional Methods

Lectures: All lectures will be delivered in person. While attendance is not required for lectures, students are responsible for all material covered in class in addition to class announcements. **One of the BEST ways to help yourself master the material is to attend every class.** Exams must be taken in person during the designated day and time. As such, attendance is required to take exams.

Textbook: Reading the assigned chapter prior to the lecture is an excellent way to improve your understanding of the material. Even if you do not understand all aspects of a given topic, simply reading the text, perusing the examples, and making sense of the figures will help you understand the material presented in class.

Homework: Homework will be administered through Smartwork 5 via Blackboard. Homework will become “live” at the beginning of a chapter. All homework should be submitted by 11:59 pm AST on the due date as indicated in the schedule below. All late homework will be penalized 10% per day up to three days, and then not accepted. Completing the homework is critically important

As previously noted, we will use the online digital platform called Smartwork 5, which accompanies the textbook. **All students need to purchase the access code and promptly register through Blackboard. Do not register directly with the publisher, otherwise your grades will not be recorded into Blackboard.** Smartwork



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will typically consist of approximately 15-20 questions. Each HW assignment is worth 10 points; 10 assignments x 10 points = 100 points total.

Quizzes: Quizzes will also be administered through Blackboard. Quizzes should be submitted by 11:59 pm AST on the due date as indicated in the schedule below. Quizzes may not be taken late. A quiz will become “live” following the completion of the chapter and will have a time limit to complete each quiz. In other words, you will have 24-48 hours to complete a quiz once it becomes live, but once you begin you will have a set amount of time to complete it based on the number of questions and the difficulty, typically 30 minutes. **Late quizzes will not be accepted.** Each quiz is worth 10 points; 10 quizzes x 10 points = 100 points total.

A note on HW and quiz points: your scores on homework and quiz assignments are based on the points you earn through correct answers divided by the total points possible. For example, if the HW assignment for Chapter 3 were to have 18 points possible and you earned 16 points, your score would be 89% (rounding up from 0.888). This translates to 8.9 points towards the 100 points possible for all 10 HW assignments.

Exams. All exams will be administered in class and will consist of multiple choice and short answer problems. The student is responsible for all information from the assigned text, lecture, and homework. Any of these sources will be used to construct exam questions. Please note: homework and quiz questions are regularly used to create exam questions, often verbatim. One of the best ways to prep for exams is to complete homework and quizzes. Three exams and a cumulative final exam will be given as per the course schedule. **All students are required to take the Final Exam in order to pass the course.**

Explanation of Student Effort

Students are expected to spend 2-3 hours per credit hour per week outside of class to be successful. Thus, you should expect to spend 8-12 hours per week outside of class on study for this class. Although this is typical, you may spend more or less than this, depending on your previous experience studying chemistry.

Course Calendar

This is a **tentative** schedule. **Assignments and dates are subject to change.**

Smartwork HW are due on the date indicated, always by 11:59 pm AST.

Quizzes are due on the date indicated, always by 11:59 pm AST.

Week	Dates	Topic/Activities	Due Dates *all times 11:59 pm Alaska Time (AST)
Week 1	Jan 10 Jan 12 Jan 14	1. Matter and Energy Jan 12 Reading: Chapter 1 Lecture: Chapter 1 2. Atoms, Ions, and Molecules Jan 14 Reading: Chapter 2 Lecture: Chapter 2	Register for Smartwork!
Week 2	Jan 17 Jan 19 Jan 21	2. Atoms, Ions, and Molecules, cont. Monday, January 17, NO CLASS Jan 19, 21 Reading: Chapter 2 Lecture: Chapter 2 Smartwork Chapter 1 Quiz Chapter 1	Smartwork Chapter 1 HW Due: Wednesday, January 19 Quiz Chapter 1 Due: Friday, January 21
Week 3	Jan 24 Jan 26 Jan 28	3. Atomic Structure Jan 24, 26, 28 Reading: Chapter 3 Lecture: Chapter 3 Smartwork Chapter 2 Quiz Chapter 2	Smartwork Chapter 2 HW Due: Monday, Jan 24 Quiz Chapter 2 Due: Wednesday, Jan 26
Week 4	Jan 31 Feb 2 Feb 4	3. Atomic Structure, cont., Exam I, Ch 1-3 Jan 31 Reading: Chapter 3 Lecture: Chapter 3 Feb 2: Exam Preview Feb 4: Exam I (Chapters 1-3) Smartwork Chapter 3 Quiz Chapter 3	Smartwork Chapter 3 HW Due: Monday, Jan 31 Quiz Chapter 3 Due: Wednesday, Feb 2 Exam I: Friday, Feb 4
Week 5	Feb 7 Feb 9	4. Chemical Bonding Feb 7, 9, 11	

	Feb 11	Reading: Chapter 4 Lecture: Chapter 4	
Week 6	Feb 14 Feb 16 Feb 18	5. Bonding Theories Feb 14, 16, 18 Reading: Chapter 5 Lecture: Chapter 5 Smartwork Chapter 4 Quiz Chapter 4	Smartwork Chapter 4 HW Due: Monday, Feb 14 Quiz Chapter 4 Due: Wednesday, Feb 16
Week 7	Feb 21 Feb 23 Feb 25	5. Bonding Theories (cont.) and 6. Intermolecular Forces Feb 21 Reading: Chapter 5 Feb 23 Lecture: Finish Chapter 5 Feb 23, 25 Reading: Chapter 6 Lecture: Chapter 6 Smartwork Chapter 5 Quiz Chapter 5	Smartwork Chapter 5 HW Due: Wednesday, Feb 23 Quiz Chapter 5 Due: Friday, Feb 25
Week 8	Feb 28 Mar 2 Mar 4	6. Intermolecular Forces, cont. Exam 2 Chapter 4-6 Feb 28 Reading: Chapter 6 Lecture: Chapter 6 Wednesday, March 2: Exam II Preview Friday, March 4, Exam II (Chapters 4-6) Smartwork Chapter 6 Quiz Chapter 6	Smartwork Chapter 6 HW Due: Wednesday, Mar 2 Quiz Chapter 6 Due: THURSDAY, Mar 3 Exam II: Friday, March 4
Week 9	Mar 7 Mar 9 Mar 11	Spring Break	Spring Break
Week 10	Mar 14 Mar 16 Mar 18	7. Stoichiometry March 14, 16, 18 Reading: Chapter 7 Lecture: Chapter 7	

Week 11	Mar 21 Mar 23 Mar 24	7. Stoichiometry (cont.) and 8. Aqueous Solutions March 21 Reading: Chapter 7 Lecture: Chapter 7 March 23, 24 Reading: Chapter 8 Lecture: Chapter 8 Smartwork Chapter 7 Quiz Chapter 7	Smartwork Chapter 7 HW Due: Wednesday, March 23 Quiz Chapter 7 Due: Friday, March 24
Week 12	Mar 28 Mar 30 Apr 1	8. Aqueous Solutions (cont) and 9. Properties of Gases March 28, 30 Reading: Chapter 8 Lecture: Chapter 8 April 1 Reading: Chapter 9 Lecture: Chapter 9 Smartwork Chapter 8	Smartwork Chapter 8 HW Due: Friday, April 1
Week 13	Apr 4 Apr 6 Apr 8	9. Properties of Gases (cont) April 4, 6, 8 Reading: Chapter 9 Lecture: Chapter 9 Quiz Chapter 8	Quiz Chapter 8 Due: Monday, April 4
Week 14	Apr 11 Apr 13 Apr 15	Exam III: Chapters 7-9 10. Thermochemistry Monday: Exam preview Wed: Exam III (chapters 7-9) Friday, April 15 Reading: Chapter 10 Lecture: Chapter 10 Smartwork Chapter 9 Quiz Chapter 9	Smartwork Chapter 8 HW Due: Monday, April 11 Quiz Chapter 9 Due: TUESDAY, April 12 Exam III: Wed, April 13

Week 15	Apr 18	Thermochemistry (cont.)	Smartwork Chapter 10 HW Due Monday, April 25 Quiz Chapter 10 Due: TUESDAY, April 26
	Apr 20		
	Apr 22	April 18, 20, 22	
		Reading: Chapter 10	
		Lecture: Chapter 10;	
	Mon, Apr 25	Monday, April 25	
		1-10 Review	
		Smartwork Chapter 10	
		Quiz Chapter 10	
		Monday, April 25 will be dedicated to final exam preview	

Final Exam date and time: Friday, April 29, 10:15 am – 12:15 pm

Evaluation

Grades will be posted to blackboard, which can be accessed from the UAF homepage. Class grades may be adjusted (curved) from the following schedule only in the students' favor. NOTE: a student earns credit based on their academic performance on the assigned work. There is NO "extra credit" – please do not ask.

Students must pass the laboratory portion of the class in order to pass the class. **Failure of the lab portion will result in failure of the entire class. A student must complete 8 labs in order to pass the lab.** As such, a student must complete 8 labs in order to be eligible to pass the class.

Regarding percentages, numbers will be truncated at the third decimal place then rounded up (≥ 5) or down (< 5). Example:

Raw score: 0.864965

Truncated to: 0.864

Rounding down: $0.864 = 0.86 = 86\%$

	Points	Grade Range	Letter Grade
Examination 1	100	100 - 97%	A+
Examination 2	100	96 - 93%	A
Examination 3	100	92 - 90%	A-
Final Examination	100	89 - 87%	B+
Lab and Groupwork	100	86 - 83%	B
Homework	100	82 - 80%	B-
Quizzes	100	79 - 77%	C+
Total	700	76 - 73%	C

72 - 70%	C-
69 - 67%	D+
66 - 63%	D
62 - 60%	D-
≤59%	F

Course Policies

Studying with others is encouraged (in accordance COVID protocols). At the same time, students are expected to do their own homework and quizzes. Homework and quizzes should be submitted on time according to the class schedule. Homework will be accepted up to three days late with a penalty of 10% per day. **Quizzes will NOT be accepted late.** No homework assignment will be accepted beyond three days late; there are no make-up homework assignments or quizzes. Exams must be taken in class during the scheduled times. Exams may not be “made up”; if you have an unavoidable and legitimate conflict with an exam please contact me as soon as possible **in advance**. You may be able take the exam BEFORE the regular exam date, but not after. You may be asked to provide documentation of the conflict. **In the event of an unforeseen emergency please contact me as soon as possible (email is best).**

Plagiarism and Academic Integrity

Academic dishonesty applies to examinations, assignments, and laboratory reports. Examples include, but are not limited to:

- Presenting as their own the ideas or works of others without proper citation of sources;
- Utilizing devices not authorized by the faculty member;
- Using sources (including but not limited to text, images, computer code, and audio/video files) not authorized by the faculty member;
- Providing assistance without the faculty member’s permission to another student, or receiving assistance not authorized by the faculty member from anyone (with or without their knowledge);
- Submitting work done for academic credit in previous classes, without the knowledge and advance permission of the current faculty member;
- Acting as a substitute or utilizing a substitute;
- Deceiving faculty members or other representatives of the university to affect a grade or to gain admission to a program or course;
- fabricating or misrepresenting data;
- Possessing, buying, selling, obtaining, or using a copy of any material intended to be used as an instrument of assessment in advance of its administration;

- Altering grade records of their own or another student's work;
- Offering a monetary payment or other remuneration in exchange for a grade; or
- Violating the ethical guidelines or professional standards of a given program.

For more, see [Students Rights and Responsibilities](#).

Extended Absence Policy

Extended absences are defined as missed classes or course work by students beyond what is permissible by the instructor's written course policies. Students may need to miss class and/or course work for a variety of reasons, including, but not limited to:

- Official UAF activities such participation in athletic events, conferences, etc.
- Bereavement
- Personal illness or injury
- Serious illness of a friend, family member or loved one
- Military obligations
- Jury service
- Other emergency or obligatory situations

For more information, go to the student handbook or the Center for Students Rights and Responsibilities and contact the instructor as soon as possible.

UAF Incomplete Grade Policy:

Your instructor follows the University of Alaska Fairbanks Incomplete Grade Policy:

"The letter "I" (Incomplete) is a temporary grade used to indicate that the student has satisfactorily completed (C- or better) the majority of work in a course but for personal reasons beyond the student's control, such as sickness, has not been able to complete the course during the regular semester. Negligence or indifference are not acceptable reasons for an "I" grade."

For more information, see [the UAF regulations regarding grades](#).

Student Protections

Student protections statement: UAF embraces and grows a culture of respect, diversity, inclusion, and caring. Students at this university are protected against sexual harassment and discrimination (Title IX). Faculty members are designated as responsible employees which means they are required to report sexual misconduct. Graduate teaching assistants do not share the same reporting obligations. For more information on your rights as a student and the resources available to you to resolve problems, please go to the following site: <https://catalog.uaf.edu/academics-regulations/students-rights-responsibilities/>.

Disability services statement: I will work with the Office of Disability Services to provide reasonable accommodation to students with disabilities.

Student Resources:



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- Disability Services (907-474-5655, uaf-disability-services@alaska.edu, Whitaker 208)
- Student Health & Counseling [6 free counseling sessions] (907-474-7043, <https://www.uaf.edu/chc/appointments.php>, Whitaker 203)
- Center for Student Rights and Responsibilities (907-474-7317, uaf-studentrights@alaska.edu, Eielson 110)
- Associated Students of the University of Alaska Fairbanks (ASUAF) or ASUAF Student Government (907-474-7355, asuaf.office@alaska.edu, Wood Center 119)

Nondiscrimination statement: The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA's statement of nondiscrimination available at www.alaska.edu/nondiscrimination. For more information, contact:

UAF Department of Equity and Compliance

1692 Tok Lane, 3rd floor, Constitution Hall, Fairbanks, AK 99775

907-474-7300

uaf-deo@alaska.edu

Library

Contact the Elmer E. Rasmuson Library at UAF reference desk for help with research. library.uaf.edu or 907-474-7481

Student Support Services

The Student Support Services (SSS) program, located in 514 Gruening Building, provides opportunities for academic development, assists students with college requirements, and serves to motivate students towards successful completion of their degree program.

Students have access to services if they meet any of the three eligibility requirements: a) limited income, b) documented disability, or c) first generation college student. Students receive intensive advising, one-one-one tutoring, technology check-outs, free printing and copying, computer lab space, and many other services. Additional information is at <https://www.uaf.edu/ss>, or contact them directly at (907) 474-6844.

Rural Student Services

Responding to student needs by providing quality services to Native and rural students who expend positive effort in the pursuit of higher education and its opportunities. Please see: <https://uaf.edu/ruralss/>. Additional student support services can be found here: <https://www.uaf.edu/ruralss/tutoring-services/>.



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UAF Help Desk

Go to <https://alaska.edu/oit/> to see about current network outages and news. Reach the Help Desk at: helpdesk@alaska.edu or 907-450-8300 (in the Fairbanks area) or 1-800-478-8226 (outside of Fairbanks).

Effective Communication Resources

- UAF Speaking Center (907-474-5470, speak@uaf.edu, Gruening 507)
- Writing Center (907-474-5314, uaf-writingcenter@alaska.edu, Gruening 8th floor)
- UAF Math Services, uafmathstatlab@gmail.com, Chapman 305 (for math fee paying students only)
- Debbie Moses Learning Center at CTC (907-455-2860, 604 Barnette St, Room 120).
- Developmental Math Lab, Gruening Building, Rm 406

For more information and resources, please see the academic advising resource list:

https://www.uaf.edu/advising/lr/SKM_364e19011717281.pdf

Veteran and Military Support Services

UAF is committed to all veterans and military students—active duty, reserve, guard, separated and retired—as well as their dependents who are exploring UAF's academic opportunities. Staff members in Financial Aid, Admissions, Career Services, Veterans' Services and the Veterans' Resource Center are here to help you with any challenges you encounter while working while in or transitioning from a military to an academic environment. Please contact the Veterans Resources Center, 907-474-2475, <https://uaf.edu/veterans/> in room 111 in the Eielson Building.

Emergency Notification Plan

Students will receive emergency notifications via phone or email. Please check your uaonline account to confirm your emergency notification settings. for more information, please refer to the student handbook. in cases where you do not have access to your devices, as your instructor, I will take responsibility to relay any emergency notifications.

Amending this Syllabus

Amendments and changes to the syllabus, including evaluation and grading mechanisms, are possible. The instructor must initiate any changes. Changes to the grading and evaluation scheme can be made before the add/drop date without a vote, but after that date must be voted on by the entire class and approved only with unanimous vote of all students present in class on the day the issue is decided. The lecture schedule and reading assignments (Daily Schedule) will not require a vote and may be altered at the instructor's discretion. This Daily Schedule can be found on Blackboard. Grading changes that unilaterally and equitably improve all students' grades will not require a vote. Once approved, amendments will be distributed in writing to all students via Blackboard.



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COVID-19

COVID-19 statement: 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?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.