Syllabus Chemistry 105

Fall 2018

I. INSTRUCTORS AND CONTACT INFORMATION

Lead Instructors

Name	Email	Office	Telephone
Dr. Jonathan Gutow *Lecture A (all sections)* *T/Th 9:40-11:10 AM*	gutow@uwosh.edu	HS-412	424-1326
Dr. Yijun Tang *Lecture B (all sections)* *T/Th 1:20-2:50 PM*	tangy@uwosh.edu	HS-442	424-7097

Additional Lab and Discussion Instructors

Name	Email	Office	Telephone
Dr. Michael Foley	foleym@uwosh.edu	HS-440	424-1314
Dr. Sharon Hawi	hawi@uwosh.edu	HS-443	424-1029
Dr. Andrew Leavitt (UWO Chancellor)	leavitt@uwosh.edu	D-220	424-0200
Dr. Jennifer Mihalick (Chemistry Chair)	mihalick@uwosh.edu	HS-439 HS-432	424-7095 424-1400

Office Hours: All instructors will have regularly scheduled times when they will be available for questions. This information will be provided by each instructor during your first meeting with them. Once all office hours are determined the information will be made available through D2L.

Course Registration and advising are managed by Chemistry's Academic Department Associate, David Miles.

Office: HS-432
Phone: 424-1400

II. REQUIRED COURSE MATERIALS

Textbook:

Read the following information carefully before you decide which textbook to buy. Consult your instructor if you have any questions.

Required:
Chemistry. Published by OpenStax.

- The instructor will only refer to this book in lectures.
- You can get a PDF file of this textbook **free** from openstax.org/subjects.
  Note: There are two chemistry books. The orange one is used in this course. (The green one is called "Chemistry: Atoms First" which is not the book required.)
- (Optional) If you want a hard copy of this textbook, follow the link on openstax.org website. It costs $55 on Amazon.

Recommended:
The following book covers all topics of this course (Chem 105, General Chemistry I). If you choose to use this text the course schedule does list the appropriate readings for each topic. This text is the required textbook of General Chemistry II (Chem 106) in Spring 19.
General Chemistry: The Essential Concepts
Chang and Goldsby, 7th Edition, McGraw-Hill, © 2014.
(The current edition is 7th edition. We do not know if or how soon a newer edition will come out.)

Course Manual:

Available from the bookstore. This contains a copy of this syllabus and laboratory handouts.

Lab notebook:

It must be bound and have duplicate pages (carbonless copying). It may **NOT** be spiral bound. It can be used both for Chem 105 and Chem 106.

Online Homework:

You need to buy the access to ALEKS. The access costs $60.00 and has a grace period of 14 days from the first day of use. Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments. During sign-up or throughout the term, if you have any technical problems or automatic scoring issues, open the Help page and click the Contact Support quick link to start live chat or send an email. You can also call (800)258-2374. The ALEKS support team is almost always faster and better able to resolve issues than your instructor.

Goggles:

Indirect vented safety goggles (must bear the number Z87.1) are required. State law requires that goggles be worn at all times during the lab. They are available at the bookstore, at the Chemistry stockroom, and from the UW Oshkosh Chemistry Club. **No goggles? No lab!**

Calculator:	Any make with scientific notation, powers, roots, and logarithms. A graphing calculator is **not** necessary. You should bring it with you to all lectures & exams. You may wish to buy a very inexpensive calculator to take to lab with you. Cell phones and other internet-enabled devices will not be allowed as calculators on tests and quizzes. *You are <u>not</u> permitted to program any information into your calculator for an exam.*
Clicker:	You must purchase a Turning Technologies clicker from the University bookstore or buy one used from another student and pay to register it for the course.

III. COURSE OVERVIEW & OBJECTIVES

Chemistry 105 is the first part of a two-semester chemistry course for science majors. It also meets requirements for chiropractic/dental/medical/pharmacy/physical therapy/veterinary programs and secondary education/science emphasis majors. Chemistry 105 provides an introduction to the structure and composition of matter. It also fulfills a natural science requirement for the University's general education program.

This course is intended to introduce the student to the language and the elementary theories of chemistry, to provide training and practice in analytical reasoning and problem solving, and to serve as the basis for further studies in chemistry. The lab portion is designed to provide training in the experimental techniques of chemistry, and to reinforce lecture material with concrete experience. Students will increase their knowledge of the physical world and develop valuable skills including critical thinking, written and oral communication, quantitative literacy, technical literacy, information literacy, teamwork, and problem solving.

Description of Course Components

Each week you will have at least four ways to learn chemistry. Success in this fast-paced and challenging course requires good attendance and a significant investment of time in addition to scheduled class hours. You are encouraged to visit the instructors during office hours to clear up points of confusion or to explore topics beyond the scope of the textbook.

<u>Homework</u>: The ALEKS homework (each assignment is called an objective) is due roughly twice a week. The homework is an intellegent tutoring system. Topics that you have not mastered will continue to appear in the assignments. If these topics are prerequisites for later topics you will not be able to work on the later topics until these are mastered. That is why you want to keep up with the schedule. Immediately before each exam there is an open-pie assignment that will allow you to review by choosing topics to work on. You can also earn access to open-pie by completing objectives/assignements before the deadline.

<u>Lecture</u>: Lectures are given Tuesdays and Thursdays in HS109. In lecture you will listen to descriptions of important concepts, take notes, and use your "Clicker" to participate in interactive exercises.

Discussion: Discussion sections provide an opportunity to reinforce lecture material in a smaller group setting. Class time will be spent working in small groups on worksheets provided by the instructor, or participating in group activities. Occasionally, new material will be presented, which will not be re-covered in lecture, but **will** be on the exams and quizzes. Credit for Discussion will be based on participation. Attendence and honest effort on the in-class exercises will earn a 100% for the day.

Laboratory: "Hands-on" laboratory work is an essential part of chemistry. In the lab you will experience directly some of the relationships discussed in the lecture, learn experimental techniques, and solve chemical problems. You will learn to use scientific instruments, and make careful observations. Bring your lab manual, lab notebook, and calculator to the laboratory. The dress code for lab includes safety goggles, long pants, long or short sleeved shirts, and closed shoes. Your shirt and pants must overlap. Pants should not touch the floor. Long hair must be tied back. Do not bring food or beverages to the lab (not even gum). Additional safety regulations will be discussed at the first lab. Students who do not follow the safety rules will lose some of the lab work points, and may be asked to leave the laboratory.

**Anyone who is pregnant or who has a history of allergies MUST see the instructor BEFORE entering the lab to do any work.

Peer Educator Sessions: A peer educator, a student who has successfully completed Chem 105 and 106, will offer an optional weekly problem-solving session. The time and location will be announced once the semester has begun.

Tutoring: The UW Oshkosh Center for Academic Resources offers free, confidential tutoring to all UWO students. CAR is located in the Student Success Center, suite 102. Check their website www.uwosh.edu/car for more information or to contact a tutor. Many students have used this in the past and found it extremely helpful!

IV. GRADING SYSTEM

A. Attendance

Regular attendance is essential to successfully passing the course. An **unexcused** absence during a scheduled discussion or exam in any part of the course will result in a zero-point score for that discussion or exam. There are **no makeups for exams.**

The reason for any **excused** absence from an exam, discussion, or laboratory session must be presented to your instructor (in advance if possible) and substantiated **in writing** with the student's signature. Emailed excuses are **NOT** enough. Assignments and tests missed for a valid reason will not be counted against you, but you will be responsible for material covered in your absence. Advance notice of a pending absence will often make it possible to arrange for an alternate time for an exam or attendance in another lab or discussion section. **If you miss more than one exam for any reason, you will receive an incomplete or a failing grade depending on the circumstances.**

B. Course Prerequisite

Credit for or concurrent enrollment in Math 104, College Algebra

C. Point Distribution Percent of total

Exams (4 exams)	52%
ALEKS Homework	15%
Discussion (participation)	10%
Clicker Questions (1 pt ea up to 25 pts, ~ 50 pts available)	3%
Laboratory	20%
Total	**100%**

D. Grading Scale

The minimum percentage necessary for each grade range is listed below. These cutoffs will not be adjusted upward, but the instructor reserves the right to lower them.

Minimum percentage	Letter grade
0 %	F
52 %	D-
56%	D
60%	D+
63%	C-
66%	C
70%	C+
74%	B-
79%	B
83%	B+
89%	A-
91%	A

Grades will be posted on D2L as they become available, so you may check your current course grade at any time during the semester. It is your responsibility to verify that all scores are entered properly. Misgraded quizzes or exams must be returned to your instructor for possible regrading no later than one week following their return. You are responsible for checking that your final score is correct. Save all work until the final course grade has been determined.

E. Laboratory Grade

Laboratory work is completed in small groups to assist students in gaining teamwork and leadership skills. Points are earned individually through pre-lab assignments, accurate record-keeping, post-lab data analysis, and lab quizzes.

Attendance in laboratory is <u>mandatory</u>. Two <u>unexcused</u> absences from lab or unsuccessful completion of the laboratory component will result in a failing grade for this course, regardless of exam scores. If you miss a lab, you may attend another lab during the same week, if space allows. **To attend another lab session you must verify the switch with both your normal lab instructor and the instructor of the lab you will attend.** Do not expect laboratory experiences to directly correlate with lecture.

F. Online Homework Grade

ALEKS assignments will be graded according to the following scheme: 50% for fraction of mastery of topics (pie progress) at the end of the semester and 50% for fraction of topics completed by assigned deadlines.

G. Clicker Grade

You will receive one point for each clicker question answered correctly; up to a maximum of 25 (at least 50 will be asked over the course of the semester).

H. Exam Schedule and Policy

Four 90-minute exams will be given. Bring your own calculator for the test. The first three will be held over two days. You will take the exam either during your scheduled class time or at the Testing Center in the basement of Polk Library. You will need your student ID in order to take the exam at the Testing Center.

Dates for the four 90-minute exams:

Exam	Dates	Location
1	Thursday and Friday, September 27th & 28th	Testing Center or lecture hall
2	Thursday and Friday, October 18th & 19th	Testing Center or lecture hall
3	Monday and Tuesday, November 12th & 13th	Testing Center or lecture hall
4	Thursday, December 13th	HS-107 or HS-109

	Polk Testing Center		**Lecture Hall**
Exam 1	Sept. 27th & Sept. 28th, 8am – 4:30pm	or	Sept. 27th in regular lecture period
Exam 2	October 18th & 19th, 8am – 4:30pm	or	Oct. 18th in regular lecture period
Exam 3	November 12th & 13th, 8am – 4:30pm	or	Nov. 12th in regular lecture period
Exam 4	Dec. 13th in regular lecture period		

The computer scan sheets for multiple choice exams will not be returned to you. Make sure you record your answers on the exam as well as the scan sheet. You must check the posted answer keys to verify that your score was entered properly.

No radios, MP3 players, headsets or other recording or transmitting devices may be used during exams. Caps with bills must have bills turned to back of head.

Early exams will be offered for students who cannot attend the exam during the scheduled day. Students who need to take an early exam must sign up with the instructor the week before the exam.

Exams will be computer scored and the answer sheet will not be returned to you, but retained by the lecturer for a permanent record. Answer keys will be posted on the bulletin board outside HS-403 and on D2L.

V. COURSE POLICIES

Classroom Decorum- Be courteous to your fellow classmates. While pertinent questions are encouraged, **talking and whispering during lecture are disruptive and annoying to nearby students** trying to listen to the lecture.

Cell Phones must be turned off and put away. This means absolutely no "texting" during class.

Computers may be used to take notes, but **do not use them for e-mail, videos, game playing, etc. during class as it is disruptive and annoying to nearby classmates** trying to listen to the lecture.

Email etiquette **–** I will happily respond to your emails as fast as I can, but please be sure to include in the subject "CHEM105:XXXX" so that I know what the email is referring to, as much information as you can provide me about what you are asking, and your name. I will not respond to emails that include "text speak".

Academic Dishonesty

The University of Wisconsin-Oshkosh is built upon a strong foundation of integrity, respect, and trust. All members of the university community have a responsibility to be honest and the right to expect honesty from others. Any form of academic dishonesty is unacceptable to our community and will not be tolerated.

As college students (and adults) you are expected to observe high standards of integrity and honesty. Students caught cheating on exams, quizzes, or in the laboratory are subject to a grade of F for the course and a report being placed in their academic records. A second offense is likely to result in expulsion from the University.

General Comments

This course is a 5-credit course. This means that it should require almost twice the amount of work required in a 3-credit course. You should not be surprised if you spend more time on this course than some of your other courses.

Probably the most important thing you can do to improve your performance and grade in this course is to keep up with the assigned reading and homework problems. In general:

- Read the textbook sections before the lecture on that material.
- Attend lectures and take clear lecture notes.
- After lecture re-read the appropriate textbook pages and update/recopy your notes.
- Work the assigned problems promptly as the material is covered.
- Seek help if you do not understand the material or are unable to work a problem.
- Write summaries/make flashcards.
- Study for the exams by re-reading the textbook material, going over the lecture notes/summaries, and redoing the problem assignments many times.

NOTE: The last date to drop this course without a Late Add/Drop Request Form is **Friday, October 19th.** Students dropping the course must check out of lab before the drop is considered complete.

Additional University Resources

Dean of Students Office: This is the office to contact (www.uwosh.edu/deanofstudents) if you have a serious issue that impacts your ability to meet your academic obligations. They can provide you with accurate advice on your options and serve as a single contact point so that you do not initially need to contact each instructor individually.

Writing Center: The Writing Center (www.uwosh.edu/wcenter) helps students of all ability levels improve their writing. Trained peer consultants help writers understand an assignment, envision possibilities for a draft, and improve their writing process. They even help writers learn to identify their own proofreading errors.

Reading Study Center: The Reading Study Center (www.uwosh.edu/readingstudycenter) is an all-university service whose mission is to facilitate the development of efficient college-level learning strategies in students of all abilities. The center offers strategies for improved textbook study, time management, note-taking, test preparation, and test-taking.

TENATIVE COURSE SCHEDULE

Chapters in OpenStax Chemistry (*Chapters in Chang text)*

Week Beginning	**Laboratory (Days vary)**	**Lecture (Tuesday)**	**Discussion (Wednesday)**	**Lecture (Thursday)**
September 3	No Lab	–	Introduction Science, Chemistry, Phases, Matter Classes, Physical & Chemical Properties Worksheet **1.1 – 1.3** (*1.1-1.4*)	Syllabus Quiz Atoms, Isotopes, Atomic Mass, Mass Spectrometer **2.1 – 2.3, 2.5** (*2.1 – 2.4, 3.1, 3.4*)
September 10	Check-in, Safety, Significant Digits Worksheet **1.5** (*1.6*)	Chemical Formulas, Molecules, Ions **2.4, 2.6, 2.7** (*2.5 – 2.7*)	Naming Practice, Dimensional Analysis Worksheet **1.6** (*1.7*)	Formula & Molecular Mass, Chemical Reactions **3.1, 4.1** (*3.1 – 3.3, 3.7*)
September 17	How Dense is an Egg?	Limiting Reagents & % Yields **4.3 – 4.4** (*3.8 – 3.10*)	Limiting Reagent & % Yields Worksheet **4.1, 4.3 – 4.4** (*3.7 – 3.10*)	Solutions, Molarity, Precipitation Reactions **3.3, 4.2** (*4.1, 4.2, 4.5*)
September 24	Water Hardness	Acid Base Reactions, Redox Reactions (not balancing), Titrations **4.2, 4.5** (*4.3, 4.4, 4.6*)	Oxidation State Worksheet + Review	Exam #1 Thursday & Friday
October 1	Acid Base Titration	Energy, Heat, Calorimetry **5.1 – 5.2** (*6.1, 6.2, 6.5*)	Heat calculations & Intro to Enthalpy **5.3** (*6.3, 6.4*)	Enthalpy **5.3** (*6.4*)
October 8	Thermochem I	Standard Enthalpies **5.3** (*6.6*)	Entropy and ΔG Worksheet	Entropy, Spontaneity, ΔG (no equilibrium) **16.1 – 16.4** (*18.1 – 18.5*)
October 15	Thermochem II	ΔG, Coupled Reactions/Biological Systems	ΔG and coupled reactions + Review	Exam #2 Thursday & Friday
October 22	Gases	Gas Laws **9.1 – 9.2** (*5.1 – 5.4*)	Gas Laws Worksheet	Gas Stoichiometry, KM Theory, Real Gases **9.3, 9.5, 9.6** (*5.4, 5.6, 5.7*)
October 29	Atomic Emission	Quantum Theory **6.1 – 6.3** (*7.1 – 7.7*)	Atomic Structure (Shells) Worksheet	Electronic Configurations **6.4** (*7.8*)
November 5	Lab Quiz 1 & Start Periodic Properties	Electronic Configurations, Periodic Properties **6.4, 6.5** (*8.1 – 8.3*)	Electronic Configurations Worksheet	Periodic Properties + Review **6.5** (*8.3– 8.5*)
November 12	Finish Periodic Properties	Exam #3 Monday & Tuesday	Lewis Structures Worksheet	Bonds, Lewis Structures, Octet Exceptions **7.1 – 7.3** (*9.1, 9.2, 9.4 – 9.6, 9.9*)
November 19	–	Octet exceptions, Formal Charge, Resonance + Review **7.3, 7.4** (*9.9*)	THANKSGIVING BREAK	
November 26	Dyes and Intermolecular Forces **SET**	Molecular Geometry **7.6** (*10.1, 10.2*) **SET**	Molecular Geometry and Hybridization Worksheet **SET**	Hybrid Orbitals, Sigma- & Pi-bonds **8.1 – 8.3** (*10.3 – 10.5*)
December 3	Lab Quiz 2 Checkout	Intermolecular Forces, Liquids **10.1 – 10.2** (*12.1 – 12.3*)	Intermolecular Forces Worksheet	Phase Changes **10.3 – 10.4** (*12.6*)
December 10	–	Solids **10.5 – 10.6** (*12.4, 12.5, 12.7*)	Review	Exam #4 Thursday & Friday