

**COURSE DESCRIPTION**

**General Chemistry I** (5 credits) is the first semester of a two-semester chemistry course sequence that is designed to meet the needs of science and engineering majors, secondary education majors with a natural science emphasis, and pre-professional students in programs such as pharmacy, dentistry, veterinary science, or physical therapy. This course introduces the language and elementary theories of chemistry, provides training and practice in analytical reasoning and problem solving, and serves as the basis for further studies in chemistry. There are three components: lecture, lab, and discussion. The lab portion is designed to provide training in the experimental techniques of chemistry and reinforce lecture material with hands-on experience.

This course is part of the University Studies Program, the general education program at UW Oshkosh. As an Explore/Nature course, it offers students the opportunity to investigate the world around them and develop valuable skills including critical thinking, written communication, quantitative literacy, technical literacy, information literacy, teamwork, and problem solving.

A detailed outline of course topics and assignments can be found on p. 6-8 of this syllabus. If any significant changes are made to this schedule during the semester, students will be notified of the changes in a timely manner.

**INSTRUCTORS**

<b>Name &amp; Class meeting times</b>	<b>Office &amp; Office hours</b>	<b>Contact info</b>
<b>Dr. Sharon Hawi</b> Lecture A09C Tue/Thur 9:40 HS-109  Discussion A01D Mon 9:10 HS-456 Discussion A02D Mon 10:20 HS-456 Discussion A03D Mon 11:30 HS-456 Discussion A04D Mon 1:50 HS-456 Discussion A05D Mon 3:00 HS-456  Lab A03L Tue 1:20 HS-404 Lab A04L Wed 1:50 HS-404 Lab A05L Thur 12:40 HS-404	HS-443  M 12:40-1:40 T, Th 11:30-12:30 or by appt	hawi@uwosh.edu  424-1029
<b>Dr. Jonathan Gutow</b>  Lab A01L Wed 8:00 HS-404 Lab A02L Wed 10:20 HS-404	HS-412 M 10:30-11:30 T 11-12 W 1-2 Th 1:30-2:30 F 11-12 or by appt	gutow@uwosh.edu  424-1326

**COURSE MATERIALS**

**Text:** General Chemistry: The Essential Concepts, 7th edition, by Chang and Goldsby, McGraw-Hill Publishing © 2014.

**Manual:** Chemistry 105 Course Manual - Spring 2023, available at the bookstore.

**Calculator:** Any make with scientific notation, powers, roots, and logs. A graphing calculator is not necessary. Cell phones will not be allowed as calculators on quizzes or exams.

**Goggles:** Indirect vented safety goggles are required in lab.

**POINT DISTRIBUTION**

		<b>Points</b>	<b>% of total</b>
Exams	4 x 120 pts	480	51%
Quizzes	4 x 25 pts	100	10.5%
Homework	best 10 x 10 pts	100	10.5%
Discussion	best 10 x 4 pts	40	4%
Lab	10 pts safety 10 pts first lab 10 x 6 pts pre-labs 10 x 12 pts lab reports 25 pts final lab quiz	225	24%
Total		945	100%

**GRADING**

Grades will be posted on Canvas as they become available. You may check your current course grade on Canvas at any time during the semester. It is your responsibility to verify that all scores are entered properly. Mis-graded items must be returned to your instructor for possible re-grading no later than one week following their return. Your final grade in the course will be determined by the total number of points you have accumulated, according to the following scale:

Minimum percentage	Minimum total points	Letter grade
0 %	0	F
52%	491	D-
56%	529	D
60%	567	D+
63%	595	C-
66%	624	C
70%	662	C+
74%	699	B-
79%	747	B
83%	784	B+
88%	832	A-
91%	860	A

**EXAMS**

Four 90-minute exams will be held on the following days:

**Tues, Feb 21**

**Thurs, March 16**

**Thurs, April 13**

**Tues, May 9**

On those days, students will have the choice of taking the exam in the lecture hall 9:40-11:10 a.m., or at the UW Oshkosh Testing Center, located in the lower level of Polk, any time between 8 a.m. and 4:30 p.m. Testing Center policies can be found at [www.uwosh.edu/testing](http://www.uwosh.edu/testing).

**QUIZZES**

Four quizzes will be conducted in Discussion as outlined on the course schedule. Each quiz is worth 25 points. If you know you're going to miss a quiz, please contact the instructor. Discussion sections also provide an opportunity to learn in a smaller group setting. Additional class time will be spent doing activities, working in groups, completing worksheets, discussing homework, and reviewing for exams. Participation in classroom activities will earn up to 4 points per week. *New material may be presented in Discussion that is not covered in lecture, but will be on the exams.*

**HOMEWORK**

Practice is the key to success in this course! To fully understand the material, do as many of the following practice problems as possible.

- 1) Within each chapter of the textbook are *Examples* with detailed solutions. Do the ones that are assigned (listed in the course schedule, p.6-8 of this syllabus).
- 2) Following each *Example* problem within the chapter is a *Practice Exercise* that is similar to the *Example*, but a detailed solution is not shown. Do the ones that are assigned (same numbers as the *Examples*). Short answers are provided at the very end of the chapter, after the end-of-chapter problems.
- 3) Do the end-of-chapter *Problems* that are assigned (listed in the course schedule on p.6-8). Answers to even-numbered *Problems* are provided in the back of the book.
- 4) Weekly homework assignments will be posted on Canvas as "Quizzes". These assignments are worth 10 pts each. There is no time limit for completing them, but they must be submitted by 8 p.m. Monday, as listed in the course schedule on p.6-8. There are 11 total homework sets. The lowest score will be dropped, and the best 10 scores will count toward your course grade.

**LABORATORY**

The chemistry laboratory provides an essential component to learning course material and gaining confidence in hands-on skills. Points are earned through pre-lab assignments, accurate record-keeping, post-lab data analysis, and a final lab quiz. **Attendance in laboratory is mandatory.** Two unexcused absences from lab or unsuccessful completion of the laboratory component (<52% of available lab points) will result in a failing grade for this course. If you miss a lab, you may attend another lab during the same week, if space allows. Please contact the instructor ahead of time.

## **ATTENDANCE**

Regular attendance is the best approach to success in this course. Students will be excused for illness, quarantine, family emergencies, and required University sanctioned activities. If you know about an absence ahead of time, it may be possible to arrange an alternative time to make up any missed assignments. Please e-mail your instructor to pre-plan your absence. Make-up quizzes and exams will not be offered after the due date. Assignments missed for an excused absence will not be counted against you, but you will be responsible for material covered in your absence. An **unexcused** absence during a scheduled quiz or examination will result in a zero point score for that quiz or exam. If you miss more than one exam for any reason, you will receive an incomplete or failing grade, depending on the circumstances.

## **CAMPUS RESOURCES**

### **Students with Disabilities**

It is the University's policy to provide reasonable accommodations to students who have documented disabilities that may affect their ability to participate in course activities or to meet course requirements. Students are expected to inform Instructors of the need for accommodations as soon as possible by presenting an Accommodation Plan from either the Accessibility Center, Project Success, or both.

### **Tutoring**

The UW Oshkosh Center for Academic Resources, located in the Student Success Center, offers free, confidential tutoring to all UW Oshkosh students. Check their website, [www.uwosh.edu/car](http://www.uwosh.edu/car), for more information or to contact a tutor.

### **Supplemental Instruction sessions**

The UW Oshkosh Center for Academic Resources arranges SI sessions for this course. These sessions are led by a student who has successfully completed the course. They will be held Tues and Thur evenings, 6:30-8:00 pm, in Sage 1216.

### **Reading Study Center**

This center offers assistance to all UW Oshkosh students who may have difficulties with time management, note-taking, test preparation, or test-taking.

### **Early Alert**

This course participates in the UW Oshkosh Early Alert program, which identifies students who may have academic or attendance issues in the first four weeks of the semester. Students are strongly encouraged to monitor their current grade in the course on Canvas, and seek help from the instructors or other resources as soon as problems arise.

Week Beginning	Lab	MONDAY		TUESDAY Lecture	THURSDAY Lecture	Textbook Homework	
		Discussion in-class	Canvas HW due by 8 p.m.			Examples & Practice Exercises	End-of-chapter problems
Jan 30	Lab Safety video & Quiz	Matter & the Elements <b>1.3, 1.4</b>	---	Atoms Isotopes Mass Spectrometer <b>2.1-2.4, 3.4</b>	Molecules, Ions <b>2.5-2.8</b>	Tues 2.1 Thur 2.2, 2.3, 2.4, 2.5, 2.7, 2.8	Tues 2.12, 2.14, 2.24, 2.62 Thur 2.30, 2.34, 2.44, 2.48 (b,c,g,h,i,k,l,n), 2.50 (a,f,g,h,k), 2.56
Feb 6	Check in Safety Significant Digits	Measurement & Dimensional analysis <b>1.5, 1.7</b>	HW1	Atomic mass Molecular mass Percent Composition <b>3.1, 3.2, 3.3, 3.5</b>	Chemical Reactions Reaction yield Limiting Reagents <b>3.7, 3.8, 3.9, 3.10</b>	Mon 1.6, 1.7 Tues 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.8, 3.10 Thur 3.12, 3.13, 3.14, 3.15, 3.16	Mon 1.32, 1.36, 1.40 Tues 3.6, 3.16, 3.18, 3.20, 3.24, 3.26, 3.30, 3.42, 3.94 Thur 3.60, 3.64, 3.66, 3.68, 3.74, 3.76, 3.84, 3.86, 3.92
Feb 13	Density of an Egg	<b>Quiz 1</b> (on chap 1-3)  Density <b>1.6</b>	HW2	Aqueous solutions Precipitation reactions Acid Base reactions <b>4.1, 4.2, 4.3</b>	Redox reactions Molarity <b>4.4-4.6</b>	Mon 1.1, 1.3, 1.4 Tues 4.1, 4.2, 4.7 Thur 4.4, 4.5, 4.9, 4.12	Mon 1.18, 1.22, 1.24 1.28, 1.30, 1.44 Tues 4.8, 4.10, 4.22, 4.24, 4.54, 4.56, 4.58, 4.60 Thur 4.64, 4.66, 4.34c, 4.42, 4.44, 4.78
Feb 20	Water Hardness	Review for Exam	HW3	<b>EXAM 1</b> Chapters 1-4	Gas Laws <b>5.1-5.3</b>	Thur 5.1, 5.4	Thur 1.20, 5.14, 5.20, 5.22, 5.24, 5.34, 5.38

Week Beginning	Lab	MONDAY		TUESDAY	THURSDAY	Textbook Homework	
		Discussion in-class	Canvas HW due by 8 p.m.	Lecture	Lecture	Examples & Practice Exercises	End-of-chapter Problems
Feb 27	Gases	Ideal Gases	HW4	Gas stoichiometry Partial Pressure <b>5.4-5.7</b>	Energy Changes <b>6.1-6.4</b>	Tues 5.2, 5.3, 5.6, 5.7  Thur 6.1, 6.2, 6.3	Tues 5.32, 5.36, 5.40, 5.42, 5.44, 5.52, 5.60, 5.66, 5.82, 5.94, 5.96, 5.106, 5.112  Thur 6.16, 6.18, 6.20, 6.26, 6.58
March 6	Thermochem 1	<b>Quiz 2</b> (on chap 5)  Heat of Solution	HW5	Calorimetry <b>6.5</b>	Std Enthalpies <b>6.6</b>	Tues 6.5, 6.7  Thur 6.9, 6.10	Tues 6.32, 6.34, 6.36, 6.76  Thur 6.46, 6.48, 6.52, 6.54, 6.62(typo rxn1→CO <sub>2</sub> ), 6.64, 6.66, 6.74, 6.84, 6.88
March 13	Thermochem 2	Heat Calculations	HW6	Review	<b>EXAM 2</b> Chapters 5 & 6		Mon 12.72
March 20	SPRING BREAK						
March 27	Acid Base Titration	Entropy <b>18.2-18.3</b>	-	Entropy Gibbs Free Energy <b>18.1-18.5</b>	Electronic structure <b>7.1, 7.2, 7.4-7.7</b>	Tues 18.1, 18.2, 18.3, 18.4  Thur 7.1, 7.2, 7.5, 7.6, 7.8	Tues 18.12, 18.14, 18.18, 18.20, 18.44, 18.46, 18.56  Thur 7.8, 7.10, 7.16, 7.18, 7.20, 7.40, 7.42, 7.54, 7.56, 7.108, 7.114
April 3	Atomic Emission	<b>Quiz 3</b> (on chap 18)  Quantum Numbers	HW7	Electron configurations Atomic emission <b>7.8, 7.9, 7.3</b>	Periodic Table <b>8.1-8.5</b>	Tues 7.4, 7.7, 7.10, 7.11  Thur 8.1, 8.2, 8.3	Tues 7.30, 7.32, 7.34, 7.80, 7.82, 7.84, 7.86  Thur 8.16, 8.18, 8.20, 8.22, 8.28, 8.32, 8.38, 8.40, 8.44

Week Beginning	Lab	MONDAY		TUESDAY	THURSDAY	Textbook Homework	
		Discussion in-class	Canvas HW due by 8 p.m.	Lecture	Lecture	Examples & Practice Exercises	End-of-chapter Problems
April 10	Absorption of Light	Paramagnetism	HW8	Ionization Energy & Exam Review	<b>EXAM 3</b> Chapters 7, 8 & 18	Tues 8.4	Tues 8.54, 8.74, 8.76, 8.80
April 17	Periodic Properties	Solution Stoichiometry	-	Bonding Lewis structures <b>9.1, 9.2, 9.4-9.6</b>	Finish Chap 9 <b>9.7-9.9</b>	Tues 9.2, 9.3, 9.5, 9.9, 9.10, 9.12 Thur 9.6, 9.7, 9.8	Tues 2.46, 9.20, 9.36, 9.62, 9.92, 9.98 Thur 9.42, 9.50, 9.54, 9.76, 9.102
April 24	Antacid Analysis	Lewis structures	HW9	Dipole moments Molecular Geometry <b>10.1-10.2</b>	Hybrid orbitals Sigma bonds <b>10.3, 10.4</b>	Tues 10.1, 10.2 Thur 10.3 10.4	Tues 10.8, 10.10, 10.12, 10.18, 10.20 Thur 10.32, 10.34, 10.36, 10.40, 10.42, 10.62, 10.72, 10.76, 10.82
May 1	<b>Lab Quiz</b> Check Out	<b>Quiz 4</b> (on chap 9 & 10)	HW10	Pi bonds Intermolecular forces <b>10.5, 12.1, 12.2</b>	Properties of Liquids Phase Diagrams <b>12.3, 12.6, 12.7</b>	Tues 12.1, 12.2 Thur 12.5	Tues 12.10, 12.12, 12.14, 12.16, 12.18 Thur 12.72, 12.74, 12.80, 12.84, 12.86, 12.90
May 8	No lab	Review	HW11	<b>EXAM 4</b> Chapters 9, 10, 12, and core topics	Return exams	-	-