

Application for CHEM 1211 - Honors General Chemistry I (Fall 2017)

Email this application by July 1, 2017 to Prof. Steele at ryan.steele@utah.edu

Course Information

CHEM 1211 is the Honors Section of General Chemistry and requires the lab course (CHEM 1240) as a co-requisite. The lecture section will be taught by Prof. Ryan P. Steele, and the lab section will be taught by Prof. Thomas G. Richmond. Only Thursday and Friday afternoon lab sessions are available. Students are also expected to complete the online Preparation for General Chemistry CHEM 1208 course immediately prior to fall semester.

Class Meets M,T,W,H,F, 8:35 AM – 9:25 AM, HEB 2006

Co-Requisite CHEM 1240 – Honors General Chemistry Lab I

Student Information

Name: _____ ID# _____

Major: _____ Year at U: _____

Are you a member of the Honors College? (circle) Yes No I will join this coming year.

Please rank your preferred laboratory times by circling your choices (1 = highest preference):

Thursday	12:55-3:55pm	1 2 3
Friday	12:55-3:55pm	1 2 3
Friday	2:00-5:00pm	1 2 3

Please provide any of the following information that is applicable to you:

SAT scores: Reading/Writing _____ Mathematics _____

ACT scores: Math _____ Science _____ English _____ Reading _____ Writing _____

Overall high school GPA: _____ (out of _____)

High school courses passed (circle all that apply, and provide an Advanced Placement score, if appropriate):

Algebra		Biology	AP ____
Geometry		Chemistry	AP ____
Pre-Calculus		Physics	AP ____
Calculus I	AP ____	Botany	
Calculus II	AP ____	Biochemistry	AP ____
Calculus III		Computer Programming	
Other math: _____		Other science: _____	

Explain why you would like to join the Honors section of General Chemistry:

Problems

Write your answer in the space provided. If you do not know the answer, respond "unknown".

1. Simplify the following expressions:

(a) $2^8 =$ _____ (b) $10^{-3} =$ _____

(c) $e^2 e^3 =$ _____ (d) $\sqrt{10^8} =$ _____

2. Solve for the indicated variable:

(a) $3x = 72$ $x =$ _____ (b) $\log_{10} x = -1$ $x =$ _____

(c) $4xy = 17y^2$ $x =$ _____ (d) $\sin(x) = 0$ $x =$ _____

3. Determine the result of the following expressions:

(a) $\sin\left(\frac{\pi}{2}\right) =$ _____ (b) $\left[\cos\left(\frac{\sqrt{2}}{2}\right)\right]^{-1} =$ _____

(c) The (x, y) coordinates of $\theta = 150^\circ$ on the unit circle are _____.

4. Determine the result of the following expressions:

(a) The (x, y) vector $(1, 2)$, when rotated 90 degrees counterclockwise, becomes _____.

(b) The (x, y, z) vector $(0, 2, 1)$, when reflected through the xz plane, becomes _____.

5. A load of garden mulch, with a volume of 4.0 cubic yards, is delivered to your home. In cubic inches, what is the volume of this delivery?

Volume = _____

6. The drive from Salt Lake City, UT to Denver, CO is 525 miles by interstate highway. At an average speed of 65 miles per hour—and without bathroom breaks—how many minutes would this drive take?

Time = _____ minutes

7. A diatomic nitrogen molecule—the dominant component in air—has a mass of 4.65×10^{-26} kg. At room temperature, its average speed is 515 m/s. In SI units, determine the average momentum of N_2 .

Momentum = _____

8. In the simplified chemical reaction $A \rightarrow B$, the rate of the reaction depends on the concentration of species B , denoted $[B]$, as _____. (Select one answer.)

(a) $\frac{d[B]}{dt}$ (b) $-[B]$ (c) $[B]^2$ (d) 0 (e) $[B](t)$

9. A combustion reaction drives most modern automobile engines. Is the combustion of octane (gasoline) exothermic, endothermic, or cannot be determined? In one complete sentence, explain your reasoning.

Attach a pdf copy of your CHEMISTRY MINOR DARS report to this application.