

CHEM120 Students:

The first exam in your science course is approaching. The General Education Academic Support is here to help. What can you do ahead of Exam 1?

1. Attend a live exam review
Thursday, May 12th 6 PM MT Exam 1 Review Join Meeting here:
[Click here to join](#)
2. Watch the recording of an exam review
[Click here to watch recorded exam review](#)
3. Schedule a 1:1 appointment with a tutor [Click here to book](#)
4. Review the topic videos from weeks 1 and 2 [Click her to review](#)

Take a look at the review guide:

Here is some information about Exam 1.

Covers content learned in weeks 1 and

2.

Is worth of 100 total points, and includes the following types of questions:

- Multiple-choice questions
- Multiple response questions
- Matching questions
- Essay questions

Week 1 Topics:

Scientific method

Hypothesis: A testable explanation.

Independent variable: What you as the scientist are controlling or changing.

Dependent variable: Depends on the independent variable. What you expect to change. What you are measuring.

Positive control: Group or condition with known outcome.

Negative control: Condition for which no change is expected.

Experimental controls: All the conditions that are held constant.

Sample question:

Q1. You have observed that your heart rate increases upon exercise, having caffeine and when you are scared. You want to conduct a study and of these which one is easily controllable independent variable?

1. Exercise
2. Amount of caffeine
3. Mental status
4. Heart rate

Ans 1.

Q2. You want to test two pain killer drugs A and B for their effectiveness in treating headaches. Based on the literature available and the chemical composition of the drugs you think drug A is more effective than B. You would like to determine which one is the most effective. State your hypothesis, design an experiment, and state a result that would support your hypothesis.

Remember to include positive and negative controls. What is the independent and dependent variable of this experiment? Name the constant variables of this experiment. (8 points)

Ans

Hypothesis: Drug A is more effective than drug B in treating headaches.

Experimental design: will have 4 groups of 6 patients of the same age, and gender, with headaches. Group 1 will receive Tylenol with water (known to treat headaches and serves as positive control), Group 2 will receive drug A with water (test group 1), Group 3 will receive drug B with water (test group 2) and Group 4 will receive just a sugar pill and water(negative control). After giving the drugs, measure the number of hr it takes to get complete relief from the headache.

Results: The result shows, that the number of hrs to get complete relief from the headache is less in the case of drug A than drug B then our hypothesis is supported.

Independent variable: drugs tested

Dependent variable: duration of the headache

Constant variable: age, sex, health conditions, drugs, caffeine intake.

Q 3. I am studying the effect of exercise on heart rate. Which will be the independent variable of this experiment.

- a. Heart rate
- b. Hours of exercise
- c. Hours spent on measuring the heart rate
- d. Hours of rest

Ans b.

Dimensional Analysis

DA Tips

- Always, ALWAYS, write your units
- Memorize the conversions (Powerpoint and Edapt)
 - Imperial to metric (Gal to L, tsp to ml, etc)
 - Metric prefixes (1000 mx = 1 x, 100 cx = 1x)
- **Always set up your start and end point before using conversions**

Examples:

1. I have a book with a weight of 0.46 lbs. What is the mass of this book in

kg? Answer:

0.46 lbs	1 kg	0.21 kg
	2.2 lbs	

2. I have a sample of a fluid with a volume of 670 ml. What is the volume of this sample in gal?

Answer:

670 ml	1 L	1 gal	0.18 gal
	1000 mL	3.785 L	

3. I have a sample that diffused to a diameter of 0.2 inches. What is this diameter in mm?

Answer:

0.2 inch	2.54 cm	1 m	1000 mm	5.08 mm
	1 inch	100 cm	1 m	