# COURSE OUTLINE

**INSTRUCTOR:** Nancy Fraser

**OFFICE:** J- 216

**E-MAIL ADDRESS:** nfraser@gprc.ab.ca

**PHONE NUMBER:** 539-2980

**OFFICE HOURS:** As posted on my office door. Other times are available by appointment.

**PREREQUISITES:** CH 0110

**COREQUISITES:** MA 0110

**COURSE GOALS:** This course is designed to provide the student with an understanding of some basic chemical concepts; atomic theory, the periodic table, bonding, nomenclature, the mole, chemical equations, as well as developing laboratory and problem solving skills.

**TEXT BOOK:** No required text

**SUPPLEMENTARY TEXTS:** Basic Chemistry, by Seese and Daub, 5th, 6th, or 7th edition.

Chemistry: A Basic Introduction , Miller, 4th edition. (or any other edition)

**EVALUATION:** Regular attendance is expected of all students, and is crucial to passing the course. Students who miss classes will soon find themselves falling behind and failing. Lateness will not be tolerated as it interrupts the instructor and fellow classmates.

A certificate (a doctor's or a note from the funeral home) will be required to make up the final exam. **You receive a grade of F if you miss the final.** Call if you are going to miss a test. There may be a deduction of 10% for test rewrites. There are NO makeup quizzes.

**Laboratory attendance to each specific experiment is compulsory; a passing grade in the laboratory component is required to pass the course.** There are NO 'make up' labs in this course.
Lab reports must be submitted on the required date and at the **required time**.

Assignments will not be accepted after the assignment has been returned to the class. I am usually a speedy marker and return papers the next day.

Penalties for late **assignments** are as follows:

1 day late – 20%, 1 days late – 50%, 3 days late – 0%

Penalties for late **lab reports** are as follows:

5 minutes – 10%, 1 day – 20%, after that – 0%

**Marking Scheme:**

| | |
|---|---|
| Lab Reports: | 15% |
| Assignments: | 15% |
| Quizzes: | 10% |
| Tests: | 20% |
| Final Exam: | 40% |
| **Total** | **100%** |

**PLAGIARISM AND CHEATING POLICY:** See College Calendar.

## GRADING EQUIVALENCE THAT WILL BE USED IN THIS COURSE:

| Alpha Grade | 4-point Equivalent | Percentage Guidelines | Designation |
|---|---|---|---|
| $A^+$ | 4.0 | 90 – 100 | EXCELLENT |
| A | 4.0 | 85 – 89 | |
| $A^-$ | 3.7 | 80 – 84 | FIRST CLASS STANDING |
| $B^+$ | 3.3 | 76 – 79 | |
| B | 3.0 | 73 – 75 | GOOD |
| $B^-$ | 2.7 | 70 – 72 | |
| $C^+$ | 2.3 | 67 – 69 | SATISFACTORY |
| C | 2.0 | 64 – 66 | |
| $C^-$ | 1.7 | 60 – 63 | |
| $D^+$ | 1.3 | 55 – 59 | MINIMAL PASS |
| D | 1.0 | 50 – 54 | |
| F | 0 | 0 – 49 | FAIL |

# COURSE CONTENT

## Unit 1: Review:

**You should know all of this material except WHMIS before taking this course. I plan to only review the definitions and to do a couple of density problem. However, YOU are responsible for <u>all</u> of this material.**

**Topics**

a. Scientific method
b. SI units
c. Uncertainty in measurements,
d. Accuracy and precision
e. Significant figures & scientific notation
f. Density
g. Define matter
   Distinguish between mass and weight
h. Distinguish elements & compounds
i. Define mixtures
j. Physical states
k. Physical & chemical properties
l. Physical & chemical changes
m. WHMIS

## Unit 2: Atomic Structure:

a. Subatomic particles
b. Historical background
c. Dalton's theory
   (Law of definite proportions)
   (Law of multiple proportions)
d. Atomic number (Z)
e. Atomic mass number
f. Atomic mass units
g. Isotopes
h. Atomic structure diagrams

## Unit 3: Periodic Table:

a. Chemical symbols
b. Origin of the periodic table
c. Reading the periodic table and valence electrons
d. Groups and periods
e. Metals, nonmetals, & metalloids(semi-metals)
f. Lewis or electron dot diagrams

## Unit 4: Bonding:

a. Introduction
b. Ionic bonding and ions, octet rule (rule of eight)
c. Covalent bonding

## Unit 5: Inorganic Nomenclature: (THE MOST IMPORTANT PART OF THIS COURSE!!!)

a. Single valence metals
b. Two nonmetals
c. Variable valence metals
d. Polyatomic ions
e. Binary acids
f. Ternary or oxyacids

* We will work mainly out of the workbook. If you are having trouble see me or see supplementary text 1.

## Unit 6: Chemical Equations:

a. Law of conservation of mass
b. Balancing equations

## Unit 7: Stoichiometry: **(only if there is time)**

a. Calculate formula mass
a. Define mole
b. Avogadro's number
c. Determine molar mass of a substance
d. Do mass to mole conversions & vice versa