# Newark Catholic High School
# Honors Chemistry

**Teacher:** P.J. Miller
**Hours:** 7:45 am -- 3:15 pm
Help sessions and appointments may be arranged outside the above hours

**Phone:** Home: (740) 366-2696
School voice mail: (740) 344-3594 Box 325

View the Text Book outline

## Grading Procedure:

- Quarterly grades will be determined on the basis of total points.
- Required written work will include homework and lab reports.
- Quizzes and tests will be completed during class time.
- Both semester exams will be comprehensive.
- All written work must be turned in on the due date in order to receive full credit.
- Credit for late work may be reduced by up to 25% for each day beyond the due date.

## Grade Scale:

| | | | | | |
|---|---|---|---|---|---|
| A | 100-93 | C | 76-73 | D+ | 69-67 |
| A- | 92-90 | C+ | 79-77 | D | 66-63 |
| B+ | 89-87 | C- | 72-70 | D- | 62-60 |
| B | 86-83 | | | F | Below 60 |
| B- | 82-80 | | | | |

## Classroom Rules:

1. Be on time
2. Be seated
3. Be quiet
4. Be attentive
5. Be prepared
6. Be respectful
7. Be honest
8. Be observant of all laboratory safety procedures (Lab Safety Contract)
9. Be observant of all school rules

## The student will:

### Measurement

- measure length, volume, and mass accurately in SI units
- perform calculations with signed numbers, exponential numbers, and percentages
- perform all calculations using the rules for significant figures
- graph and interpret experimental data
- apply the factor-label method to problem solving

### Matter, Energy, and Changes

- describe elements, compounds, and mixtures
- compare physical and chemical properties
- differentiate between physical and chemical changes
- relate energy to changes in matter

- relate equilibrium, enthalpy, and entropy to phase changes

### Modern Atomic Theory

- describe the Bohr model of the atom
- determine the number of $e^-$, $p^+$, and $n^0$ in a nuclide
- interrelate the wave and particle models
- write electron configurations
- draw orbital diagrams
- write electron dot notations

### Chemical Bonding

- use electronegativity scale to predict the bond type between atoms
- draw Lewis structures
- interrelate electron configurations, oxidation number, orbital hybridization, bond angle, and molecular shape
- interpret properties in terms of molecular shape
- predict solubility based on bond type and molecular shape
- relate properties to intermolecular forces

### Chemical Shorthand

- write formulas from charge or oxidation number
- complete and balance chemical equations
- classify chemical reactions by type
- use the activity series and solubility table to predict reactions

### Descriptive Chemistry of the Elements (Periodic Table)

- demonstrate an understanding of the periodic law
- illustrate the behavior of elements within a group or family
- predict trends in the properties of elements within the same period or series
- contrast the properties of elements in different groups and/or periods
- relate chemical principles to the everyday world

### Chemical Calculations

- use the mole concept in calculations
- calculate % composition, empirical, and molecular formulas
- solve mass-mass, mass-volume, volume-volume, and limiting reactant problems
- calculate % yield
- solve gas law problems
- solve concentration, pH, and titration problems
- calculate changes in enthalpy, entropy, and free energy
- perform calculations bases on the rate law
- solve problems using the equilibrium constant expression
- identify the element oxidized, the element reduced, and balance redox equations
- calculate redox potentials
- solve problems dealing with electro analysis

### Nuclear Chemistry

- Compare the three types of radiation (alpha, beta, and gamma) on the basis of properties
- Balance nuclear equations

- Solve half-life problems
- Contrast and compare fission and fusion as sources of energy

## Qualitative Analysis

- Perform safely and accurately the known experiments and record results
- identify the cation in an unknown salt
- identify the anion in an unknown salt
- report the correct formula and name for the unknown salt