

Syllabus for Honors Chemistry

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A. Course Description

Honors Chemistry takes a broad-view survey of the fundamental concepts of inorganic chemistry. These concepts include the nature of matter, atomic theory, quantum mechanics, chemical bonding, chemical naming, reaction classification, stoichiometry, laboratory practicum, and more. Both courses offer the same exposure to content, however Honors Chemistry supports theory with additional mathematical explanation. A minimum of a C in Algebra I is required. Detailed information for dual credit requirements will be given upon registration for class. Any student with the intent of pursuing a college degree is strongly encouraged to experience chemistry during high school. Furthermore, any student with the intent of pursuing a science-based college degree should plan to take chemistry and another elective science as a junior, thus allowing for advanced science classes as a senior, such as Advanced Chemistry, Honors Physics or AP Biology. To ensure all students have an opportunity to be successful in their chemistry experience, all students enrolling in chemistry will be placed based upon individual success in previous MATH classes. **As such, Honors Chemistry is offered as a dual credit course with the University of Great Falls. Attendance incentives do not apply to college level courses. You will be required to take semester exams and be present on semester test days!**

B. Basic Rules and Expectations:

All school rules apply INCLUDING DRESS CODE!

-NO FOOD. Water will be allowed in clear containers.

Follow all safety guidelines!

Show respect for the teacher, fellow students and yourself

CONSEQUENCES:

- 1.) Warning/Loss of privileges
- 2.) 10 minute detention
- 3.) 20 minute detention
- 4.) Parent/Teacher Conference and PAR
- 5.) AP meeting

If at any time a major offence occurs (fighting, making threats, major insubordination), these steps can/will be passed and more drastic consequences will be put in place. RESPECT and RESPONSIBILITY are the key words here. Respect others. Respect yourself. You are the only you on this planet!

C. Method of Instruction

Honors Chemistry consists of a combination of collaborative learning, laboratory experiences and lecture/class discussion. On average there are three to four exams per quarter. There are daily formative assessments in alignment with BLUE. At the end of each semester, there is a cumulative/summative exam.

D. Course Objectives

1. Objective 1: Structure, properties and interactions of matter
2. Objective 2: Knowledge of properties, forms, changes and interactions of physical and chemical systems
3. Objective 3: Stoichiometry
4. Objective 4: Molar ratios and chemical reaction analysis
5. Objective 5: States of matter
6. Objective 6: Acids, bases, salts and titration
7. Objective 7: Reaction rates and equilibrium
8. Objective 8: Energy changes in chemical reactions

E. Course Topics/Units

1. Objective 1: Structure, properties and interactions of matter
 1. Scientific method
 2. Statistical, mathematical and graphical analysis of data
2. Objective 2: Knowledge of properties, forms, changes and interactions of physical and chemical systems
 1. Classification of matter
 2. Periodic table and its trends
 3. Models of the atom
 4. Bonding
 5. Chemical formulas
 6. Oxidation numbers
3. Objective 3: Stoichiometry
 1. Reaction types
 2. Balancing equations
 3. Products formed using activity series and solubility tables
4. Objective 4: Molar ratios and chemical reaction analysis
 1. Molar mass
 2. % composition
 3. Empirical and molecular formulas
 4. Limiting reactants
 5. % yield
5. Objective 5: States of matter
 1. Kinetic molecular theory
 2. Gas laws
 3. Colligative properties
6. Objective 6: Acids, bases, salts and titration
 1. Identification based on properties
 2. Molarity from titrations
 3. pH and pOH
7. Objective 7: Reaction rates and equilibrium
 1. Factors that change reaction rates
 2. Endothermic/exothermic reactions
 3. Equilibrium calculations
8. Objective 8: Energy changes in chemical reactions
 1. Energy relationships in chemical and physical changes
 2. Specific heat
 3. Heats of fusion and vaporization
 4. Laws of thermodynamics

F. Textbook(s) and Required Tools or Supplies:

1. Textbook (required): *Modern Chemistry @2017 Sarquis, Sarquis*
2. Supplies and/or tools: graphing calculator and composition notebook

G. Grading Plan

1. Your final grade will be given as a letter grade:

A (90-100%)
B (80-89.9%)
C (70-79.9%)
D (60-69.9%)
F (59.9% and lower)

2. Weighting of course components:
 - a. Labs and Homework (30%)
 - b. Quizzes or tests (60%)
 - c. Final exam (10%)

H. Course Component Specifics

In Honors Chemistry, you will be expected to participate on a daily basis in class discussion. Homework will be given as needed to compliment your learning process in class. If you miss a homework assignment, test/quiz or lab, you will be expected to make it up within one week of your absence. If you are gone multiple days, the due date will be one week from the last day of your absences.

It is both unethical and you learn nothing from copying someone else's work. THIS IS plagiarism and considered CHEATING! **I have a zero tolerance policy.** Cheating on an exam will result in a zero. Plagiarism of another's work on a lab report or homework assignment will also result in a zero for that assignment.

The calendar presented on bit.ly/hodgesgfh is subject to change based on unforeseeable circumstances/school conflicts (i.e. counselors in the room, lockdowns, etc...)

I. Lab Safety

- 1.) Follow all written and verbal instructions given
- 2.) Read directions thoroughly before starting an activity
- 3.) Protect eyes, face, hands, and body when necessary while conducting an activity
- 4.) Know the location of first aid and firefighting equipment
- 5.) Conduct yourself in a responsible manner at all times in a laboratory situation
- 6.) Be financially responsible for any damaged or broken equipment

On the first day of school you will be given a safety contract that both you and a parent/guardian will need to sign and return to me. There will also be a safety quiz given that you will need to pass with a 100% before you may participate in any lab in honors chemistry.