CHILLICOTHE
HIGH SCHOOL

Honors Inorganic Chemistry Syllabus
CHS Science Department

Contact Information: Parents may contact me by phone, email, or visiting the school.
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CCSD Vision Statement: The Chillicothe City School District will provide tomorrow's leaders with a high quality education by developing high expectations and positive personal relationships among students, staff, and community members.

CCSD Mission Statement: The Chillicothe City School District empowers students to learn, to lead, and to serve.

Course Description and Prerequisite(s) from Course Handbook:
Honors Inorganic Chemistry - 323
State Course #: 132326 (Level I)
Prerequisite: Successful completion of Algebra II, as well as "B" or better in Biology and Physical Science. Sophomores may take this course concurrently with Algebra II and with (math and science) teacher recommendation.

Elective	Grade: 10-12
Weighted Grade	Credit: ½

Course Description:

One of the objectives of this course is to prepare students for college-level chemistry. Honors Chemistry is a second year chemistry course that is divided into 2 semester classes: Honors Inorganic Chemistry and Honors Applied/Organic Chemistry. The concepts taught in Honors Inorganic Chemistry extend connections, depth, and detail of first year chemistry. Topics include chemical foundations, behavior of gases, compound interactions, stoichiometry, molarity, solutions, atomic structure and periodicity, and nature of reactions. It is necessary for the student to have a strong background in chemistry and math. **The laboratory fee is $15.**

Learning Targets: Defined below for clarity are the Unit Titles, Big Ideas of every Unit taught during this course, and the Essential Questions to be answered to better understand the Big Ideas. A student's ability to grasp and answer the Essential Questions will define whether or not he or she adequately learns and can apply the skills found in Big Ideas. This will ultimately define whether or not a student scores well on assessments administered for this course.

- **<u>1st Quarter</u>**
  Unit I Title: Chemical Foundations
    - **Big Idea #1:** I can correctly apply measurement in chemistry
      - Essential Question #1: How do use the metric system, the scientific method, and significant digits?
      - Essential Question #2: How do I solve problems using dimensional analysis?
      - Essential Question #3: How do I calculate and apply density?
    - **Big Idea #2:** I can use the periodic table and atomic models to explain experimental evidence and make predictions.
      - Essential Question #1: What scientists are associated with the development of the modern atomic theory?
      - Essential Question #2: What are the groupings, characteristics and trends of elements by location on the periodic table?
      - Essential Question #3: How do I classify matter?
    - **Big Idea #3:** I can use quantum theory to explain electron behavior.
      - Essential Question #1: How do I apply the principles of quantum theory to describe electrons?
      - Essential Question #2: How do I draw and determine orbital notations and write electron configuration notations using the periodic table?
      - Essential Question #3: How do I identify and apply trends found on the periodic table?
  - **Unit II Title: Chemical Bonds and Reactions**
    - **Big Idea #1:** I can use the periodic table to write formulas and name compounds.
      - Essential Question #1: How do I write chemical formulas?
      - Essential Question #2: How do I name compounds?
    - **Big Idea #2:** I can predict, model, and identify compounds.
      - Essential Question #1: How do I identify and model ionic bonds?
      - Essential Question #2: How do I identify and model covalent bonds?
      - Essential Question #3: How do I identify and model polyatomic bonds?
    - **Big Idea #3:** I can classify, balance, and write chemical equations.
      - Essential Question #1: How do I classify and balance chemical equations
      - Essential Question #2: How do I write chemical equations when I know the reactants?
- **<u>2nd Quarter</u>**
  - **Unit III Title: Chemical Reactions and Stoichiometry**
    - **Big Idea #1:** I can predict unique formulas and characteristics of chemical compounds.

        - Essential Question #1: How do I calculate percentage composition?
        - Essential Question #2: How do I find the empirical and molecular formulas of compounds?
        - Essential Question #3: How do I determine percent yield of a chemical species in a reaction?
    - **Big Idea #2:** I can use the mole to count atoms and convert substances.
        - Essential Question #1: What is the relationship between moles, molar mass, and number of particles?
        - Essential Question #2: How do I convert grams, moles, number of particles, density, and volume using dimensional analysis?
        - Essential Question #3: How do I solve for limiting and excess reactants?
- **Unit IV Title: Types of Reactions and Solution Stoichiometry**
    - **Big Idea #1:** I can explain water's remarkable power as a solvent.
        - Essential Question #1: How do I distinguish between strong, weak, and nonelectrolytes?
        - Essential Question #2: How do I apply the solubility rules for ionic compounds?
        - Essential Question #3: How do I use molarity and concentration to understand the composition of solutions?
    - **Big Idea #2:** I can use 3 types of equations to represent aqueous ionic reactions.
        - Essential Question #1: How do I distinguish between precipitation, acid-base, and oxidation-reduction reactions?
        - Essential Question #2: How do I determine net ionic reactions and spectator ions?
    - **Big Idea #3:** I can use oxidation-reduction to identify the transfer of electrons.
        - Essential Question #1: How do I apply rules to assign oxidation numbers?
        - Essential Question #2: How do I identify oxidation, reduction, as well as oxidizing and reducing agents in a reaction?
        - Essential Question #3: How do I balance equations using redox?
- **END OF COURSE EXAM**

Course Materials:

- Google Chromebook and earbuds when needed
- 3 ring binder and notebook
- Scientific calculator
- Writing utensils

Textbook:
Chemistry by Zumdahl and Pearson's "Chemistry" by Wilbraham, Staley, Matt, and Waterman

Course Expectations:
This is an honors level course. It is designed to prepare you for college chemistry. Students will be expected to do reading outside of class time and will have homework almost every evening. It is important that students have good attendance and work ethic so that they do not fall behind. This is a class that builds on previously learned material so staying on track is very important. It is a challenging and fast paced curriculum.

Grading:

Unit Exams	50%
Assessments (Including: Quizzes, Essays, Labs, and Projects)	30%
Class work/Homework	20%

- Each nine week's grade comprises 40% of a student's final grade.
- The End of Course Exam comprises 20% of a student's final grade.

Grading Scale:
The grading scale for Chillicothe High School can be found in the student handbook or online at http://www.chillicothe.k12.oh.us/1/Content2/studenthandboook.

Late Work: Late work will be subject to the Board-adopted policy on assignments that are submitted late (to be reviewed in class).

- Regardless of the absence type (excused, unexcused, OSS, etc.), students are expected to make up work and be held accountable for learning all material they missed.
- Any student who is absent from school will receive one (1) additional day for every day he/she missed to make up his/her work for full credit (100%).
- Any student who exceeds the allotted time to turn in an assignment for full credit may still submit work late for partial credit.
    - Any student who turns in work up to 1 week late must at least be given the opportunity to earn 75% on that assignment.
    - Any student who turns in work between 1 and 2 weeks late must at least be given the opportunity to earn 60% on that assignment.
- The end of the 9 weeks is the cut off point for teachers to accept late work from students for full or partial credit unless the teacher decides to give the student an incomplete for the 9 weeks due to extenuating circumstances.

Performance Based Section: Writing Assignments/Exams/Presentations/Technology
One or more of the End of Unit Exams may be Performance Based. According to the Ohio Department of Education, "Performance Based Assessments (PBA) provides authentic ways for students to demonstrate and apply their understanding of the content and skills within the standards. The performance based assessments will provide formative and summative information to inform instructional decision-making and help students move forward on

their trajectory of learning." Some examples of Performance Based Assessments include but are not limited to portfolios, experiments, group projects, demonstrations, essays, and presentations.

CHS Honors Inorganic Chemistry Course Syllabus

After you have reviewed the preceding packet of information with your parent(s) or guardian(s), please sign this sheet and return it to me so that I can verify you understand what I expect out of each and every one of my students.

Student Name (please print): _____

Student Signature: _____

Parent/Guardian Name (please print): _____

Parent/Guardian Signature: _____