## PETERS TOWNSHIP HIGH SCHOOL

COURSE SYLLABUS: HONORS CHEMISTRY

## **Course Overview and Essential Skills**

Honors Chemistry is offered as a first year Honors Science Course in Chemistry at Peters Township High School. Due to this course's heavy math component, students are expected to excel in algebra and mathematic problem solving.

Honors Chemistry meets for seven 41-minute periods each week, including 2 back-to-back double periods. This arrangement provides flexibility for lab, small group collaboration, testing, and open-ended investigations. Course topics include scientific method, atoms, compounds, chemical bonds, chemical reactions, phases of matter, solutions, and acids and bases. Laboratory experiments and activities complement theory while emphasizing safety and science writing skills.

A PTHS Honors Chemistry Student exemplifies the following characteristics necessary to achieve success: academic initiative and enthusiasm, high standard of honesty and reliability, self-motivation and an independent work ethic, strong study skills, enjoys being academically challenged, completes his/her own work, asks and answers questions during class.

## **Course Textbook and Required Materials**

- Modern Chemistry (2017) ISBN#: 978-0-544-81784-5
- 2" or 3" Binder, lined paper, scientific calculators

## **Course Outline of Material Covered:**

Unit	Topic	Assessments	Timeframe
Foundations	Laboratory Safety	Lab safety quiz, Bunsen Burner and Bending	3 Weeks
of Chemistry	Matter and Change (Chpt 1)	Glass Lab, Chapter 1 Exam, Chapter 2 Exam,	
	Measurements and	Evidence of Chemical Change Lab, Accuracy and	
	Calculations (Chpt 2)	Precision Lab, Specific Heat of a Metal Lab	
The Atom	Atoms: Building Blocks of	Chapter 3 Exam, Chapter 4 Exam, Intro to	7 Weeks
	Matter (Chpt 3)	Spectroscopy Lab, Beer's Law Lab, Periodic Law	
	Electron Arrangement in	Exam, Constructing a Periodic Table Project,	
	Atoms (Chpt 4)	Qualitative Analysis Lab Report	
	The Periodic Table (Chpt 5)		
Compounds	Chemical Bonding (Chpt 6)	Chromatography Lab, VSEPR Model Lab, Chapter	6 Weeks
	Chem Formulas and	6 Exam, Determination of a Metal Oxide Lab,	
	Compounds (Chpt 7)	Nomenclature Exam, Chapter 7 Exam,	
		Chromatography Inquiry, Polyatomic Ion Quiz,	
		Percent Oxygen in Potassium Chlorate Lab,	
		Cupric Carbonate Lab, Hydrate Lab Inquiry	
Chemical	Chem Equations and	Chemical Reactions Lab, Chemical Reactions	7 Weeks
Reactions	Reactions (Chpt 8)	Exam, Stoichiometry Exam, Percent Yield	
	Stoichiometry (Chpt 9)	Inquiry, Carbonate Lab, Limiting Reactant	
		Inquiry	

Phases of	Gases (Chpt 11 )	Physical Characteristics of Gases Exam, Physical	6 Weeks
Matter	States of Matter (Chpt 10)	and Chemical Properties of Hydrogen Lab,	
		Physical and Chemical Properties of Oxygen Lab,	
		Butane Lab, Molar Volume Lab, Molecular	
		Composition of Gases Exam, Molar Heat of Fusion	
		Lab, Heating and Cooling of Paradichlorobenzene	
		Lab, Dry Ice Inquiry, Liquids and Solids Exam	
Solutions	Solutions (Chpt 12)	Solutions Exam, Ions in Solution Exam, Acid and	7 Weeks
	Ions in Solution	Base Exam, Experimental Creation of a Solubility	
	(Chpt 13 & 19)	Curve Lab Report, Solubility Rules Lab,	
	Acids and Bases (Chpt 14)	Acid/Base Titrations	
	Titrations (Chpt 15)		

<sup>\*</sup>Depending on the needs of the class or changes in the school year, the course outline is subject to change.