

# Ocean View Christian Academy

## Honors Chemistry SCI1100

**Teacher:** Mr. Williams

**Room:** 201

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**Honors Textbook:** *Chemistry* 3<sup>rd</sup> Edition by BJU Press

### I. Basic Course Information

#### OVCA Course Philosophy

Science is the study of God's creation and how it works. By exploring the work of God, students can see the divine order of creation. Also, it is vital that our students explore this subject because science remains the yardstick by which an innovative nation progresses. God has created an orderly world. And thereby, order and reason govern our study of science.

#### Course Description

Chemistry is a two-semester course designed for students entering 11<sup>th</sup> grade. This course is designed to help students expand the chemistry knowledge obtained during physical science. Success in this course will prepare a student for general chemistry in his or her first year of college.

#### Course Materials

- Mechanical pencils (please, no pens)
- Notebook reserved for chemistry
- Binder reserved for chemistry
- TI 84, TI 84+ or TI 89 Titanium Graphing Calculator

## II. Tentative Course Outline

### Course Overview

Unit Name	Topics
Chemistry Fundamentals	Scientific method, classification of matter, nomenclature, polyatomic ions, determination of atomic mass, mole concept, percent composition empirical and molecular formula, chemical equations, limiting reagent, theoretical and percent yield
Types of Chemical Equations	Electrolytes, molarity and preparation of solutions, precipitations reactions, solubility rules, acid-base reactions, titrations, balancing redox, gravimetric calculations
Gas Laws	Measurements of gases, Boyle, Charles, combined and ideal gas laws, Dalton's law of partial pressure, kinetic molecular theory, Maxwell-Boltzmann Distribution
Thermochemistry	Law of conservation of energy, work, internal energy, endothermic and exothermic reactions, potential energy diagrams, calorimetry, heat capacity, specific heat, Hess's Law, heat of formation/combustion, bond energies
Atomic Structure and Periodicity	Electron configuration, Aufbau principle, valence electrons, Lewis dot structure, periodic trends, properties of light, study of waves, atomic spectra of hydrogen, quantum mechanical model, quantum theory and electron orbitals, orbital shape and energies, spectroscopy
Chemical Bonding	Lewis dot structure, resonance structures, formal charge, bond polarity, dipole moments, VSEPR models, molecular shape, lattice energies, hybridization, molecular orbital diagrams
Liquids, Solids and Solutions	Structure and bonding, vapor pressure, change of state, heating and cooling curves, solution composition, colloids, suspensions, separation techniques, biological systems
Kinetics	Rates of reactions, collision theory, reaction pathways, activation energy, Boltzmann distribution
Acids and Bases	Nature of acids and bases, $K_w$ and pH scale, polyprotic acids, pH of salts
Buffers, $K_{sp}$ , and Titrations	Characteristics and capacity of buffers, titrations, pH curves, choosing acid-base indicators, solubility, $K_{sp}$ calculations, solubility product
Thermodynamics	Laws of thermodynamics, spontaneity, entropy, enthalpy, free energy
Electrochemistry	Balancing redox equations, electrochemical cells, voltage, Nernst equation, spontaneous and nonspontaneous equations

### III. Course Policies

#### Guided Notes and Homework

We will use guided notes and homework packets to maximize the amount of class time spent practicing math skills. Your student will receive a packet with fill-in-the-blank notes and homework for the entire unit at the beginning of each unit. This minimizes the time the students spend copying information, the time I spend passing out papers, and helps boost organization so students can develop a clear picture of the curriculum and connect lessons throughout the school year.

#### Extra Credit

Opportunities for extra credit will be limited to questions on quizzes and tests that reflect an understanding above and beyond the expectation of the course. However, I may offer optional assignments or challenges throughout the year that students may complete to earn *extra homework grades* to bolster their grade. Additional work/tasks will not be assigned to students seeking extra credit to improve their grade.

#### Late Work

- The penalty for late assignments is 10% per day for up to five days. After the fifth day, the student will receive a zero.
- If a student misses a quiz or test, it is assumed that they will complete it after school on their first day back unless they communicate otherwise. Lack of communication will result in a deduction of 10% per day up to five days. After the fifth day, the student will receive a zero.
- The penalty for other assignments such as long-term projects, papers, lab write-ups, etc. is 10% per day for up to five days. After the fifth day, the student will receive a zero.

#### Help Sessions

Help sessions will be available **Monday, Tuesday and Thursday from 2:45 PM – 3:30 PM** or by appointment. I am always happy to help by appointment!

#### Academic Dishonesty

Any student caught committing or facilitating academic dishonesty will receive no credit for the assignment and be referred to the office staff to discuss further consequences. Refer to your parent/student handbook for further details.

## Classroom Guidelines

1. Be **ready** in your seat when the bell rings.
2. Be **respectful** of others, their property, and opportunity.
3. Be **responsible** for your own learning.

Consequences for not following the guidelines are listed below and will be carried out in a manner that seems fit depending on the severity of the offense.

- Verbal warning
- After class discussion
- Parent intervention
- Drop in effort/conduct grade
- Office intervention

## Communication

Students are welcome to communicate by stopping by my classroom or via email. I will not respond to emails from students after 6:00 PM or over the weekends.

Parents desiring a personal conference should communicate with me first via email. I will not hold drop-in meetings concerning a student's academic performance.

## Final Comments

Please see the parents/student handbook for any questions not addressed in the syllabus. I have refrained from including OVCA school guidelines and procedures in this syllabus to conserve the school's resources.

On the next page is a contract of agreement. Please sign the agreement, students and parents, and return it by Wednesday, August 26, 2020. It is a homework grade.

If all of the information above seems scary; fear not, you are in good hands. I promise to provide any and all resources that I have in order to help you reach your goals.

A handwritten signature in black ink that reads "Rob L. Wilkin". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

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### Contract of Agreement

#### Student

I have read the class syllabus and understand the classroom guidelines and policies as outlined. I agree to abide by the expectations and will commit myself to submitting quality work this school year.

Name (print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

#### Parent

I have discussed the syllabus with my student. I understand the syllabus, support it, and will make every effort to ensure my student's academic success as outlined in the syllabus.

Name (print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_