

AP Chemistry



Dominican International School

Course Syllabus

School Year 2026–27



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AP Chemistry

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WEEKLY SCHEDULE

COURSE DESCRIPTION:

The AP Chemistry course provides students with a college-level foundation to support future advanced coursework in chemistry. Students cultivate their understanding of chemistry through inquiry-based investigations, as they explore content such as: atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium. The AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first college year.

PREREQUISITES: Students should have successfully completed a general high school chemistry course and Algebra II.

LABORATORY REQUIREMENT: This course requires that 25 percent of instructional time engages students in lab investigations. This includes a minimum of 16 hands-on labs (at least six of which are guided inquiry). It is required that students keep a lab notebook throughout.

COURSE OBJECTIVES: The following science practices describe what skills students should develop during the course:

- Models and Representations: Describe models and representations, including across scales.
- Question and Method: Determine scientific questions and methods.
- Representing Data and Phenomena: Create representations or models of chemical phenomena.
- Model Analysis: Analyze and interpret models and representations on a single scale or across multiple scales.
- Mathematical Routines: Solve problems using mathematical relationships.
- Argumentation: Develop an explanation or scientific argument.

PRIMARY TEXTBOOKS AND OTHER RESOURCES:

ISE Chemistry: The Molecular Nature of Matter and Change

Martin Silberberg; Patricia Amateis

ISBN 978-1-266-22283-2

GRADING SYSTEM/ASSESSMENT:

IN-CLASS ASSESSMENT

Students will be assigned daily homework. These assignments will be posted in the Google Classroom and will consist of video and written assignments. This course will follow the DIS student handbook policy for homework lateness. Most assignments will be digital in format and will be provided from the assigned textbook as well as from the AP College Board.

AP CHEMISTRY EXAM: 3 HOURS, 15 MINUTES

Assessment Overview

The AP Chemistry Exam assesses students' understanding of the science practices and learning objectives outlined in the course framework. The exam is 3 hours and 15 minutes long and includes 60 multiple-choice questions and 7 free-response questions. A scientific or graphing calculator is recommended for use on **both** sections of the exam. Students are provided with the periodic table and a formula sheet that lists specific and relevant formulas for use on the exam.

ACADEMIC DISHONESTY:

Academic Dishonesty means employing a method or technique or engaging in conduct in an academic endeavor that contravenes the standards of ethical integrity expected at DIS.

Academic dishonesty includes but is not limited to the following:

- Purposely incorporating the ideas, words of sentences, paragraphs, or parts thereof without appropriate acknowledgment and representing the product as one's work;
- Representing another's intellectual work, such as photographs, paintings, drawings, sculpture, research, or the like, as one's own, including failure to attribute content to an AI.
- Employing a tutor, using Artificial Intelligence without acknowledgment, getting a parent to write a paper or do an assignment, and paying for an essay to be written by someone else and presented as the student's work.
- Committing any act that a reasonable person would conclude, when informed of the evidence, to be a dishonest means of obtaining or attempting to obtain credit for academic work.

Any act of academic dishonesty will result in an automatic zero on the entire assignment/learning task.

First Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 Aug 10 - 14	Monday Class Preparation ~ Student Holiday Tuesday Morning Assembly Friday Opening Mass & Assumption of Our Lady 8:00 1.1 Moles and Molar Mass 1.2 Mass Spectra of Elements 1.3 Elemental Composition of Pure Substances 1.4 Composition of Mixtures
Week 2 Aug 17 - 21	LAB 1 - TBA 1.5 Atomic Structure and Electron Configuration 1.6 Photoelectron Spectroscopy 1.7 Periodic Trends 1.8 Valence Electrons and Ionic Compounds
Week 3 Aug 24 - 28	2.1 Types of Chemical Bonds 2.2 Intramolecular Force and Potential Energy 2.3 Structure of Ionic Solids 2.4 Structure of Metals and Alloys
Week 4 Aug 31 - Sep 4	LAB 2 - TBA 2.5 Lewis Diagrams 2.6 Resonance and Formal Charge 2.7 VSEPR and Hybridization 3.1 Intermolecular and Interparticle Forces
Week 5 Sep 7 - 11	3.2 Properties of Solids 3.3 Solids, Liquids, and Gases 3.4 Ideal Gas Law 3.5 Kinetic Molecular Theory 3.6 Deviation from Ideal Gas Law
Week 6 Sep 14 - 18	LAB 3 - TBA 3.7 Solutions and Mixtures 3.8 Representations of Solutions 3.9 Separation of Solutions and Mixtures 3.10 Solubility
Week 7 Sep 21 - 25	T-W-Th Pre-Exam Days Friday Moon Festival ~ Public Holiday 3.11 Spectroscopy and the Electromagnetic Spectrum 3.12 Properties of Photons 3.13 Beer-Lambert Law
Week 8 Sep 28 - Oct 2	Monday Confucius' Birthday ~ Public Holiday Thursday Major Exams Day 1 Friday Major Exams Day 2 LAB 4 - TBA 4.1 Introduction to Reactions 4.2 Net Ionic Equations 4.3 Representations of Reactions
Week 9 Oct 5 - 9	Monday Record Day ~ Student Holiday T-W-Th Teachers Conference ~ Student Holiday Friday Double 10 Day ~ Public Holiday

Second Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (10) Oct 12 - 16	4.4 Physical and Chemical Changes 4.5 Stoichiometry 4.6 Introduction to Titration 4.7 Types of Chemical Reactions
Week 2 (11) Oct 19 - 23	LAB 6 - TBA 4.8 Introduction to Acid–Base Reactions 4.9 Oxidation–Reduction (Redox) Reactions
Week 3 (12) Oct 26 - 30	Monday Retrocession Day ~ Public Holiday 5.1 Reaction Rates 5.2 Introduction to Rate Law 5.3 Concentration Changes Over Time 5.4 Elementary Reactions 5.5 Collision Model 5.6 Reaction Energy Profile
Week 4 (13) Nov 2 - 6	LAB 7 - TBA 5.7 Introduction to Reaction Mechanisms 5.8 Reaction Mechanism and Rate Law 5.9 Pre-Equilibrium Approximation
Week 5 (14) Nov 9 - 13	5.10 Multistep Reaction Energy Profile 5.11 Catalysis 6.1 Endothermic and Exothermic Processes 6.2 Energy Diagrams
Week 6 (15) Nov 16 - 20	LAB 8 - TBA 6.3 Heat Transfer and Thermal Equilibrium 6.4 Heat Capacity and Calorimetry 6.5 Energy of Phase Changes
Week 7 (16) Nov 23 - 27	T-W-Th Pre-Exam Days Friday Grade 12 Exams 6.6 Introduction to Enthalpy of Reaction 6.7 Bond Enthalpies 6.8 Enthalpy of Formation 6.9 Hess's Law
Week 8 (17) Nov 30 - Dec 4	Monday Grade 12 Exams Hydrogen Bonding, Ion-Dipole Forces, and IMF Lab ▪ Hydrogen bonding ▪ Ion-dipole forces and dissolving ionic compounds ▪ IMFs and boiling point / melting point ▪ Lab 4: IMF Evaporation or Solubility Lab
Week 9 (18) Dec 7 - Dec 11	Monday TBD Tuesday Foundation Day Mass 9:00, Cutting of the Cake Ceremony, Christmas Fair, (Whole day) Wednesday TBD Thursday Major Final Exams half day Friday Major Final Exams half day
<i>Dec 14 to Jan 1 Christmas Break</i>	

Third Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (19) Jan 4 - Jan 8	Monday Record Day ~ Student Holiday Friday New Year Mass at 8:00 LAB 9 - TBA 7.1 Introduction to Equilibrium 7.2 Direction of Reversible Reactions 7.3 Reaction Quotient and Equilibrium Constant
Week 2 (20) Jan 11 - Jan 15	7.4 Calculating the Equilibrium Constant 7.5 Magnitude of the Equilibrium Constant 7.6 Properties of the Equilibrium Constant 7.7 Calculating Equilibrium Concentrations
Week 3 (21) Jan 18 - Jan 22	LAB 10 - TBA 7.8 Representations of Equilibrium 7.9 Introduction to Le Châtelier's Principle 7.10 Reaction Quotient and Le Châtelier's Principle
Week 4 (22) Jan 25 - Jan 29	7.11 Introduction to Solubility Equilibria 7.12 Common-Ion Effect 8.1 Introduction to Acids and Bases 8.2 pH and pOH of Strong Acids and Bases
Week 5 (23) Feb 1 - Feb 5	Thursday Little New Year's Eve ~ Public Holiday Friday Lunar New Year ~ Public Holiday LAB 11 - TBA 8.3 Weak Acid and Base Equilibria 8.4 Acid-Base Reactions and Buffers 8.5 Acid-Base Titrations
<i>February 8 to 12 Chinese New Year Holiday</i>	
Week 6 (24) Feb 15 - Feb 19	8.6 Molecular Structure of Acids and Bases 8.7 pH and pK_a 8.8 Properties of Buffers 8.9 Henderson-Hasselbalch Equation
Week 7 (25) Feb 22 - Feb 26	8.10 Buffer Capacity 8.11 pH and Solubility
Week 8 (26) Mar 1 - Mar 5	Monday Memorial Day ~ Public Holiday T-W-Th Pre-Exam Days 9.1 Introduction to Entropy 9.2 Absolute Entropy and Entropy Change 9.3 Gibbs Free Energy and Thermodynamic Favorability 9.4 Thermodynamic and Kinetic Control
Week 9 (27) Mar 8 - Mar 12	Limiting Reactants and Percent Yield • Limiting reactant concepts and calculations • Theoretical yield and percent yield • Lab 3: Stoichiometry or Limiting Reactant Lab
Week 10 (28) Mar 15 - Mar 19	9.5 Free Energy and Equilibrium 9.6 Free Energy of Dissolution 9.7 Coupled Reactions

Week 11 (29) Mar 22- Mar 26	Tuesday Major Final Exams half day Wednesday Major Final Exams half day Thurs - Fri Easter Break (Spring Break) ~ Public Holiday 9.8 Galvanic (Voltaic) and Electrolytic Cells 9.9 Cell Potential and Free Energy
<i>March 25 to April 2 Easter & Spring Break</i>	

Fourth Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (30) Apr 5 - Apr 9	Monday Tomb Sweeping Day ~ Public Holiday Tuesday Children's Day ~ Public Holiday AP EXAM REVIEW
Week 2 (31) Apr 12 - Apr 16	AP EXAM REVIEW
Week 3 (32) Apr 19 - Apr 23	19 - 23 AP Mock Exams AP EXAM REVIEW
Week 4 (33) Apr 26 - Apr 30	T-W-Th Pre-Exam Days Friday Labor Day ~ Public Holiday AP EXAM REVIEW
Week 5 (34) May 3 - May 7	3 - 7 Final Exams (K, Gr. 5, 8, & 12 Only) 3 - 14 AP Exams AP EXAM REVIEW
Week 6 (35) May 10 - May 14	3 - 14 AP Exams Wednesday Major Final Exams Undergraduates half day Thursday Major Final Exams Undergraduates half day Friday Record Day ~ Student Holiday AP EXAM REVIEW
Week 7 (36) May 17 - May 21	Monday Gr. 12 Recollection (Morning) Monday Baccalaureate Mass (Afternoon, Schoolwide) Wednesday House Sports Day Thursday High School Field Trip Friday House Culminating Activity All Week Student Clearance Days & Special Events
Week 8 (37) May 24 - May 28	Monday Middle & High School Sports Day Monday LS Field Trip Tuesday Kindergarten Graduation/Gr. 5 Promotion Wednesday Gr. 8 Graduation and Gr. 12 Graduation Thursday Pre-Kindergarten & Gr. 1 - 4, 6 & 7, 9-11 Recognition Friday Last Day of School for Students