朝陽科技大學 099學年度第1學期教學大綱
Basic Chemistry 基礎化學

當期課號	1641	Course Number	1641
授課教師	卓重光	Instructor	JOW,CHUNG KUANG
中文課名	基礎化學	Course Name	Basic Chemistry
開課單位	應用化學系(四日)一A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	使新進學生具備基礎數理能力，奠定其未來四年專業課程之學習效果。	Objectives	This course is aimed to enhance freshmen's fundamental ability in high school mathematics. Course content contains several review topics regarding 1.The properties of numbers and their applications, 2. Logarithmic and Exponential functions, 3. Trigonometric functions, 4. Vectors, 5. Plane analytic geometry, 6. Matrix and solution of algebraic equations, and certain optional themes.
教材	"General Chemistry", by Raymond CHang, 4th ed., McGraw Hill International Edition, 2006.	Teaching Materials	"General Chemistry", by Raymond CHang, 4th ed., McGraw Hill International Edition, 2006.
成績評量方式	每週交作業, 兩次期中考, 一次期末考.	Grading	homework every week two midterm. final exam.
教師網頁	http://www.cyut.edu.tw/~ckjow		
教學內容	本課程將針對普通化學的課本習題, 提供一系列的練習及解答,使學生除囉一般在課堂中學習的知識之外,還能對其衍生的題目有所了解及解答・ 一、 化學簡介: 學習基本的理論及定義。 二、 原子、分子與離子。 三、 當量化學。 四、 水溶液反應。 五、 氣體反應。 六、 化學反應之能量關係。 七、 原子之電子結構。 八、 元素週期表。 九、 化學鍵(一): 共價鍵。 十、 化學鍵(二): 分子形狀與混成化軌道。 11. 基本有機化學 12. 溶液之物理性質 13. 化學動力學 14. 化學平衡 15. 酸鹼反應 16. 酸鹼平衡與溶解度平衡 17. 熱力學 18. 氧化還原反應與電化學	Syllabus	This course aims to the practice of the General Chemistry. In addition to the understandind the knowledge of the General Chemisty, this course also affords chances to students to have know deeper theory of the testbook. 1. Introduction of basic chemistry. 2. Atoms, Molecules and Ions. 3. Stoichiometry. 4. Reactions in Aqueous Solutions. 5. Gases. 6. Energy Relationships in Chemical Reactions. 7. The Electronic Structure of Atoms. 8. The periodic Table. 9. Chemical Bonding I: The Covalent Bond. 10. Chemical Bonding II: Molecular Geometry and Hybridization of Atomic Orbitals. 11. Introduction to Organic Chemistry: aliphatic & aromatic hydrocarbon; functional groups; chirality. 12. Physical Properties of Solutions: solution process; concentration units; effect of temperature; effect of pressure; colligative properties. 13. Chemical Kinetics: reaction rate; rate laws; activation energy; reaction mechanism; catalysis. 14. Chemical Equilibrium: equilibrium constant; factors affaect K. 15. Acids & Bases: measure of acidity; strength od acid & base; acid ionization constants of weak acid and base; properties of salt; oxides; Lewis acid & base. 16. Acid-Base Equilibria & Solubility

			Equilibria: buffer solution; acid-base titration; indicator; solubility equilibria; common ion effect; complex ion equilibria. 17. Thermodynamics: three laws; spontaneous process; entropy; Gibbs free energy; chemical equilibrium. 18. Redox Reaction & Electrochemistry: redox reaction; Galvanic cell; standard reduction potential; cell Emf; batteries; corrosion; electrolysis.

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