

2019 至 2020 学年 第 一 学期

# 教 学 日 历

课程名称 大学化学( I ) 性质 必修

总学时 72 讲课 64 实验 8 其它         

授课班级 石工留学生班

学生人数 20

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所在院(系、部) 理学院应用化学系

系(教研室)主任签字                                 

教材名称：化学：中心科学      作者：西奥多 L 布朗 等

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Teaching time			Course content	Weekly hours	Time allocation			
Week #	Week day	Course section			lecture	experiment	exercise	
1	Mon	5-6	introduction; §1-1gas: 1.1.1 ideal gas equation of state;	6	2			
	Wed	3-4	1.1.2 Mixed ideal gas partial pressure law.		2			
	Fri	3-4	§1-2 First law of thermodynamics: 1.2.1 Basic concepts of thermodynamics;		2			
2	Mon	5-6	1.2.2 The first law of thermodynamics;	6	2			
	Wed	3-4	1.2.3 heat capacity; 1.2.4 Some applications of the first law of thermodynamics.		2			
	Fri	3-4	1.2.5 Introduction to Thermochemistry; 1.2.6 Calculation of reaction enthalpy.		2			
3	Mon	5-6	§1-3 Second Law of Thermodynamics: 1.3.1 The second law of thermodynamics;	6	2			
	Wed	3-4	1.3.2 entropy;		2			
	Fri	3-4	1.3.3 The third law of thermodynamics 1.3.4 The standard molar Gibbs function of the reaction.		2			
4	Mon	5-6	§1-4 Chemical Equilibrium 1.4.1 The concept of equilibrium 1.4.2 The equilibrium constant.	6	2			
	Wed	3-4	1.4.3 Calculation of the equilibrium constant of chemical reaction		2			
	Fri	3-4	§2-1 Chemical reaction rate and mechanism. §2-2 Concentration and rate laws		2			
6	Mon	5-6	2.2.1 Law of mass action and rate constant; 2.2.2 Reaction series;	6	2			
	Wed	3-4	§2-3 Temperature and rate: 2.3.1 Arrhenius equation;		2			
	Fri	3-4	§2-4 Reaction mechanisms §3-1 3.1.1 The solution process		2			
7	Mon	5-6	§3-2 Saturated solutions and solubility 3.2.1 Factors affecting solubility	6	2			
	Wed	3-4	§3-3 Reactions in aqueous solution 3.3.1 General properties of aqueous solutions		2			

	Fri	3-4	§3-4 Acid-base equilibria §3-5 Additional aspects of aqueous equilibria		2			
8	Mon	5-6	3.5.1 The common-ion effect 3.5.2 Buffers	6	2			
	Wed	3-4	§4-1 Electrochemistry 4.1.1 Oxidation states and oxidation-reduction reactions		2			
	Fri	3-4	§4-2 Balancing redox equations; §4-3 Voltaic cells		2			
9	Mon	5-6	4.3.1 Cell potentials under standard conditions	6	2			
	Wed	3-4	§4-4 Free energy and redox reactions		2			
	Fri	3-4	§4-5 Cell potentials under nonstandard conditions		2			
10	Mon	5-6	§4-6 Batteries and fuel cells.	6	2			
	Wed	3-4	§4-7 Corrosion §5-1 phase: 5.1.1 phase and number of phases.		2			
	Fri	3-4	5.1.2 Phase transition process, phase transition;		2			
11	Mon	5-6	5.1.3 independent component number and degree of freedom.	6	2			
	Wed	3-4	§5-2 single component system phase equilibration.		2			
	Fri	3-4	5.2.1 Clapeyron equation; 5.2.2 Clapeyron-Kreusius equation; 5.2.3 Phase diagram of water.		2			
12	Mon	5-8	Experiment 1: HCl	6	2			
	Wed	3-4	§6-1 Surface tension and interphase phenomena			4		
13	Mon	5-8	Experiment 2: NaCl	6	2			
	Wed	3-4	§6-2 interphase adsorption and surfactant.			4		