

COURSE SYLLABUS

Course number and name	206 CHEM-3 CHEMISTRY 2
Credits hours	3 Credit hours
Contact hours	4 Contact hours; 2 for lecture and 2 for Tutorial
Instructor name	Dr Syed Kashif Ali
Textbook	Chemistry Seventh Edition by Steven S. Zumdahl and Susan A. Zumdahl.
Other supplemental materials	POWER POINT OF THE TOPICS
Specific course information	
Catalog description	This course aims to give students knowledge in the following fields: Applications of Aqueous Equilibria (Acid–Base Equilibria, Solubility Equilibria, Complex Ion Equilibria), Chemical Kinetics, Thermodynamics-2, Transition Metals and Coordination Chemistry, Nuclear Chemistry, Electrochemistry, The Representative Elements (Groups 1A Through 4A, Groups 5A Through 8A), Organic and biological molecules (Polymers, Natural Polymers)
Prerequisite	106 CHEM-4
Required / Elective	Required
Specific goals for the course	
Course Learning Outcomes (CLO)	<p>By the end of this course, the student should be able to:</p> <p>CLO#1 Explain the concepts related to- Rate laws, half-life, role of catalyst, end-point /equivalence pt. in titration, solubility product - conditions of precipitation , Demonstrate the knowledge of the basic laws of thermodynamics; condition for spontaneity-free energy, entropy; Demonstrate the knowledge of Cell-potential; batteries; radioactivity; periodicity of elements; coordination compounds, metallurgy, isomerism, polymers Demonstrate the knowledge of nucleus, isotopes, periodicity of elements, stoichiometry, electrolytes, acid/bases, organic molecules (basic structures)</p> <p>CLO#2 Analyze and solve problems related to half-life, equivalence pt., solubility product, free energy, entropy, cell-potential, isomerism</p> <p>CLO#3 Show proficiency in expressing (both in writing and verbal discussions) opinions/conclusions regarding rate laws, laws of thermodynamics, periodicity of elements, isomerism</p> <p>CLO#4 Demonstrate proficiency in expressing (both in writing and verbal discussions) opinions/conclusions regarding to half-life, equivalence pt. solubility product, free energy, entropy, cell-potential, isomerism, coordination compounds, metallurgy</p> <p>CLO#5 Demonstrate proficiency in writing and speaking about chemistry topics in a clear and concise manner according to professional standards</p>
List of topics to be covered	<ol style="list-style-type: none"> 1) Chemical Kinetics. 2) Application of Aqueous Equilibria 3) Thermodynamics-2. [Spontaneity, Entropy, Free Energy] 4) Electrochemistry 5) . Nuclear Chemistry

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| | <ul style="list-style-type: none">6) The Representative Elements(Group 1A TO 4A)7) The Representative Elements(Group 5A TO 8A)8) Transition metals and Coordination Chemistry9) Organic and Biological molecules(Polymers,Natural Polymers). |
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