



UNIVERSITAS NEGERI YOGYAKARTA
FAKULTAS MIPA

FRM/FMIPA/065-00
14 Februari 2011

SYLLABUS

Faculty : Mathematics and Natural Sciences
Program : Science Education
Course/Code : Basic Chemistry II/SSC 207
Credits : Theory = 2 units; Labwork = 0
Semester : II
Prerequisite/Code : -----
Lecturer : Maryati, M.Si.

I. Course Description

This course is the second of a two semester sequence which is a survey of, Solubility product, Chemical kinetics, electrochemistry, Nuclear Chemistry, Transition metals and Coordination Compound, Organic and Biological Chemistry

II. Course Standard Competence

1. Know and understand principles of solubility product
2. Know and understand chemical kinetics.
3. Solve simple electrochemistry problem
4. Understand about transition metals and coordination compound
5. Understand the using of nuclear chemistry in the living.
6. Understand about organic and biological chemistry.

III. References

Required:

- A. Brown, Theodore L., Lemay, H. Eugene, Bursten, Bruce E., 2005, **Chemistry the central Science**, International Edition, Pearson Prentice Hall.

IV. Activities

Week	Topics	Lecturer Strategy	Refference
1	Solubility product <ul style="list-style-type: none">• K_{sp}• Factors Affecting Solubility• Will a Precipitate Form?• Selective Precipitation of Ions	Presentation, discussion, Problem-solving exam,	A. Chapter 17 th
2	Chemical Kinetics-1 <ul style="list-style-type: none">▪ Kinetics ?▪ Reaction rate▪ Important equations	Discussion, Presentation and problem solving	A. Chapter 14 th

	<ul style="list-style-type: none"> ▪ Reaction rate and stoichiometry ▪ Factors that affect reactions rate 		
3	Chemical Kinetics-1 <ul style="list-style-type: none"> ▪ Rate laws ▪ First and second order processes ▪ The Half-life ▪ Arrhenius equation 	Problem-solving exam, cumulative final	A. Chapter 14 th
4	Transitional metals and Coordination Chemistry <ul style="list-style-type: none"> • Transition metals • Coordination compound <ul style="list-style-type: none"> ▪ Ligands ▪ Name of coordination compounds • Transition metal trace elements in humans 	Problem-solving exam, cumulative final	B. Chapter 23 th
5	Electrochemistry <ul style="list-style-type: none"> • Electrochemical reaction • Balancing reduction dan oxidation equation • Voltaic cells • EMF (electromotive force) 	Problem-solving exam, cumulative final	A. Chapter 20 th
6	<ul style="list-style-type: none"> • Application of redox reaction <ul style="list-style-type: none"> ▪ Batteries and fuel cells ▪ Corrosion ▪ Electrolysis 	Problem-solving exam, lab participation, cumulative final	A. Chapter 20 th
7	Nuclear Chemistry <ul style="list-style-type: none"> • The Nucleous <ul style="list-style-type: none"> ▪ Isotop ▪ radioactivity • Type of radioactive decay • Kinetics of radioactive decay • Energy in nuclear radioactive decay 	Discussion, presentation and Problem-solving	A. Chapter 21 th
8	<ul style="list-style-type: none"> • Nuclear fission • Nuclear reactor • Nuclear fusion • Biological effects of radiation 	Discussion, presentation and problem solving	A. 21.7-21.9
9	MIDDLE TEST		
10	Organic and Biological chemistry <ul style="list-style-type: none"> • Organic chemistry-1 <ul style="list-style-type: none"> ▪ Alkanes (properties, Isomers, Organics nomenclature, Cycloalkanes, Reaction) ▪ Alkenes (properties, nomenclature, Cycloalkanes, mekanisme of additions Reaction) ▪ Alkynes (nomenclaturem aromatic HC, functional group) 	Discussion, presentation, Problem-solving cumulative final	A. Chapter 24 th

11	<ul style="list-style-type: none"> • Organic chemistry-2 <ul style="list-style-type: none"> ▪ Alcohols ▪ Ethers ▪ Carbonyl compound ▪ Aldehydes ▪ Ketones ▪ 	Discussion and Presentation	A. Chapter 24 th
12	<ul style="list-style-type: none"> • Carboxylic acids • Esters • Amides • Amines • Chyrality 	Discussion and presentation	A. Chapter 24 th
13	<ul style="list-style-type: none"> • Amino Acids and protein <ul style="list-style-type: none"> ▪ Amino acid (types and structure) ▪ Properties of amino acids ▪ Usefullnes of protein ▪ Polymer of amino acids 	Discussion, presentation, Problem-solving cumulative final	A. Chapter 24 th
14	<ul style="list-style-type: none"> • Carbohydrates <ul style="list-style-type: none"> ▪ Mono-, di-, polyssakarida ▪ Identify of caarbohydrate 	Discussion, presentation, Problem-solving cumulative final	A. Chapter 24 th
15	<ul style="list-style-type: none"> • Lipid <ul style="list-style-type: none"> ▪ Lipid acid ▪ Strucutre of lipid ▪ • Saponification 	Discussion, presentation, Problem-solving cumulative final	A. Chapter 24 th
16	Final exam	Cumulative final	Individual participans

V. Assessment

No	Component	Weight (%)
1	In-Class Participation	10%
2	Assignments	20%
3	Mid-Term Exam	30%
4	Final Exam	40%
	Total	100%

Yogyakarta, february 12th 2013

Lecturer