BROOKDALE COMMUNITY COLLEGE

CHEM. - 102 - GENERAL CHEMISTRY II

5.0 Credits

COURSE SYLLABUS

0906

CHEM. II - GENERAL CHEMISTRY II

COURSE GOAL

The students will study the concepts of inorganic chemistry involving theoretical and laboratory experiences. The four units to be covered are:

1. Chemical kinetics & Chemical Equilibrium
2. Acid and bases; Acid Base Equilibrium & Solubility Equilibrium
3. Thermochemistry; Entropy, Free Energy & Equilibrium; Electrochemistry
4. Transition Metal Chemistry, Nuclear Chemistry; Organic Chemistry

METHOD OF EVALUATION

Formal testing

PREREQUISITE

CHEM. 101, MATH 151

REQUIRED MATERIALS

1. TEXTBOOK: Chemistry by Raymond Chang, 9th Edition, 2006, McGraw-Hill, Inc.

2. LABORATORY: Laboratory Experiments: Chemistry, The Central Science, by John H. Nelson and Kenneth C. Kemp, 10th Edition, 2003, Prentice Hall.

3. SAFETY GOGGLES: New Jersey State Law requires that all students wear appropriate splash and impact proof safety goggles while performing laboratory experiments. They are available at the College Store.

4. FULL LENGTH LABORATORY COAT: All students are required to wear full length lab coat during the laboratory period.

OPTIONAL MATERIALS

Student Solution Manual by Brandon J. Cruickshank

DISABILITY SERVICES OFFICE

If you have a documented disability and would like to request accommodations and/or academic adjustments, contact the Disability Services Office (732) 224-2730 0r TTY (732) 842-4211.

Brookdale Community College
Chemistry Department Grading and Testing Policy

GRADING STANDARD:

90 – 100	**A**
87 – 89.99	**B+**
80 – 86.99	**B**
75 - 79.99	**C+**
70 – 74.99	**C**
60 – 69.99	**D**
59 & Below	**F**

1. The total laboratory grade will be based on an average of fourteen (14) laboratory experiments and an average of six (6) laboratory quizzes given through the semester. The experiment average will make up 80% of the final grade and the quiz average will make up 20% of the final grade.
2. Any missed lab will be averaged in as a zero (0). Students will have the opportunity to make up one (1) missed laboratory experiment during the semester with a valid excuse. There will be time scheduled by the learning assistant in charge of the lab for this purpose.
3. Any missed laboratory quiz will not be made up.

DEPARTMENT POLICIES

Chemistry Laboratory Policies

1. Students must attend their scheduled laboratory section. Students are not allowed to attend any other lab section for any reason.
2. Students must pass both the lecture and the laboratory portion of the course.

COLLEGE POLICIES:

For information regarding:

- Brookdale's Academic Integrity Code
- Student Conduct Code
- Student Grade Appeal Process

Please refer to the **STUDENT HANDBOOK AND BCC CATALOG.**

NOTIFICATION FOR STUDENTS WITH DISABILITIES:

Brookdale Community College offers reasonable accommodations and/or services to persons with disabilities. Students with disabilities who wish to self-identify, must contact the Disabilities Services Office at 732-224-2730 or 732-842-4211 (TTY), provide appropriate documentation of the disability, and request specific accommodations or services. If a student qualifies, reasonable accommodations and/or services, which are appropriate for the college level and are recommended in the documentation, can be approved.

ADDITIONAL SUPPORT/LABS:

Learning assistants are available for help for both lab and lecture. The times of availability are posted at the learning assistants' office. For any additional information, please call the Chemistry Department at 732-224-2424.

CHM 102 General Chemistry II

Number of Chapters: 15, 16

Name of Chapters: Acid and base, Acid base equilibria & solubility equilibria.

Unit : #II

LEARNING OBJECTIVES		RECOMMENDED PRACTICE EXERCISES	
1.	Bronsted acids and bases.	Read: 15.1 Do exercise:	15.4, 15.6 15.8
2.	The acid-base properties of water.	Read: 15.2 Do exercise:	15.9, 15.11
3.	pH-A measure of acidity	Read: 15.3 Do exercise:	15.16, 15.18 15.20, 15.22 15.24, 15.26
4.	The strengths of acids and bases. Write the correct formula for a compound	Read: 15.4 Do exercise:	15.32, 15.34 15.36, 15.38
5.	Weak acids & acid ionization constants	Read: 15.5 Do exercise:	15.44, 15.46 15.48, 15.50
6.	Weak bases & Base Ionization constant	Read: 15.6 Do exercise:	15.54, 15.56
7.	The relationship between the ionization constants of acids and their conjugate bases. Diprotic & Polyprotic acids	Read: 15.7, 15.8 Do exercise:	15.57, 15.60 15.62, 15.64
8.	Molecular structure and the strength of acids.	Read: 15.9 Do exercise:	15.68, 15.70

18.	pH and solubility	Read: 16.9 Do exercise:	16.64, 16.66, 16.68
19.	Complex ion equilibria and solubility.	Read: 16.10 Do exercise:	16.69, 16.70 16.72, 16.74
20.	Qualitative analysis.	Read: 16.11 Do exercise:	16.80, 16.82

8.	The second law of thermodynamics	Read: 18.4 Do exercise: 18.10, 18.12 18.13, 18.14
9.	Gibbs free energy (Gibbs Function)	Read: 18.5 Do exercise: 18.17, 18.18 18.20
10.	Free energy and chemical equilibrium	Read: 18.6 Do exercise: 18.24, 18.26 18.28, 18.30 18.32, 18.38 18.42, 18.48 18.50, 18.64
11.	Balancing Redox Equations	Read: 19.1 Do exercise: 19.1, 19.2
12.	Electrochemical Cells (Galvanic Cells) and Standard Emfs	Read: 19.2, 19.3 Do exercise: 19.3, 19.6 19.12, 19.14 19.16, 19.18
13.	Spontaneity of Redox Reactions	Read: 19.4 Do exercise: 19.22, 19.24 19.25, 19.26
14.	Effect of concentration on cell emf.	Read: 19.5 Do exercise: 19.27, 19.28 19.30, 19.32 19.34
15.	Batteries.	Read: 19.6 Do exercise: 19.37, 19.38
16.	Corrosion.	Read: 19.7 Do exercise: 19.39, 19.40 19.42
17.	Electrolysis.	Read: 19.8 Do exercise: 19.46, 19.48 19.54, 19.52

10.	Natural radioactivity	Read: 23.3	
		Do exercise:	23.24, 23.26
			23.28, 23.30
11.	Nuclear Transmutation	Read: 23.4	
		Do exercise:	23.34, 23.36
12.	Nuclear Fission	Read: 23.5	
		Do exercise:	23.37, 23.41
13.	Nuclear Fusion	Read: 23.6	
		Do exercise:	23.43, 23.44
			23.45, 23.46
14.	Uses of isotopes	Read: 23.7	
		Do exercise:	23.48, 23.50
15.	Classes of organic compounds	Read: 24.1	
		Do exercise:	24.1, 24.2
16.	Aliphatic hydrocarbons	Read: 24.2	
		Do exercise:	24.3, 24.7
			24.12, 24.14
			24.16, 24.18
			24.20, 24.24
			24.26, 24.28
17.	Aromatic hydrocarbons	Read: 24.3	
		Do exercise:	24.29, 24.30
			24.31, 24.32
18.	Chemistry of the functional groups	Read: 24.4	
		Do exercise:	24.36, 24.38
			24.40, 24.42
			24.44, 24.46
			24.48, 24.50