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**Ohio Articulation Number (OAN)
Course Submission Form
2005-2006**



College/University Washington State Community College

Course(s) Submitted(Title & Course #) Fundamentals of Chemistry II for
CHEM 142
Ohio Articulation Number OSC 008

Date 4/24/06 Course 2 of a 2 Course OAN mapping.

Name and title of individual submitting on behalf of the college/university

Name Mark Nutter Title Chief Academic Officer/Dean of Arts & Sciences

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Credit Hours 5 qtr X sem _____

Lecture Hours 4

Laboratory Hours 3 (if applicable)

Pre-Requisites(s) Course work (if applicable)

CHEM 141 with a grade of C or better

Placement Score (if applicable)

(Name of test) _____

(Domain) _____ (Score) _____

Catalog/Course Description (Includes Course Title and Course #)

Texts/Outside Readings/Ancillary Materials

Required Textbook: Chemistry The Central Science, by Brown, Lemay and Bursten, Prentice Hall, 10th ed.2006,

Laboratory Experiments-Chemistry *The Central Science*, by Nelson and Kemp, Prentice Hall, 10 ed. 2006.

Supplementary and/or Resource Materials: Safety Eye Protection, Scientific Calculator

Course Objectives and/or Plan of Work

COURSE OBJECTIVES: Upon successful completion of the course, the student should be able to:

1. Relate and apply the Kinetic-Molecular theory to gases, liquids, and solids. (ST, 3)
2. Identify & evaluate the nature and importance of Solutions & Colligative properties. (ST, CT, PS) (2, 4, 5)
3. Describe and calculate equilibrium, ionization & rate constants and use algebraic methods to solve these chemical problems & those of Entropy, Enthalpy and Gibbs Free Energy. (ST, PS, C) (1,2,3,4)
4. Demonstrate a fundamental understanding of Acids and Bases in terms of structure, strength and pH and to perform calculations involving the above quantities including buffers. (ST, PS, C) (1,2,4,5)
5. Demonstrate a working understanding of Buffers and their importance for the environment including living systems. (ST, CT, C) (2,3,5)
6. Show by successful completion of lab activities and reports, an understanding and compliance with appropriate safety practices and proper data acquisition skills and the use of this data in chemical calculations. (ST) (1,4)
7. List five positive educational outcomes of the lab experience and defend their significance in an oral report presented during the Lab Checkout & Closure session. (ST, C) (1,3,4)

Description of Assessment and/or Evaluation of Student Learning

- | | |
|-----------------------------|-------------|
| 1) Attendance/participation | 4) Labs |
| 2) Written Examinations | 5) Homework |
| 3) Oral Reports | |

Master Syllabi and Working Syllabi (if both are used)



Course Syllabus

COURSE CODE: Chem-142 **TITLE:** Fundamentals of Chemistry II

CREDIT HOURS: 5.0 **PREREQUISITES:** Chem 141 with a grade of C or better

HOURS REQUIRED WEEKLY: Lecture:4 Lab:3 Outside Study/Preparation: 6-8

OFFICIAL DEPARTMENTAL COURSE SYLLABUS PREPARED BY: Dr. Tom Steckel

Fall 2005

CATALOG DESCRIPTION:

Introduction to Thermodynamics and equilibrium through the study of solutions with problem solving.

COURSE MATERIALS:

Required Textbook: Chemistry The Central Science, by Brown, Lemay and Bursten, Prentice Hall, 10th ed.2006, Laboratory Experiments-Chemistry The Central Science, by Nelson and Kemp, Prentice Hall, 10 ed. 2006.

Supplementary and/or Resource Materials: Safety Eye Protection, Scientific Calculator

MOST COMMON INSTRUCTION METHODOLOGY USED IN THIS COURSE:

LE (Lecture), DI (Discussion), LB (Lab)

COURSE OBJECTIVES: Upon successful completion of the course, the student should be able to:

1. Relate and apply the Kinetic-Molecular theory to gases, liquids, and solids. (ST, CT, C) (2,3)
2. Identify & evaluate the nature and importance of Solutions & Colligative properties.(ST, CT, PS) (2, 4, 5)
3. Describe and calculate equilibrium, ionization & rate constants and use algebraic methods to solve these chemical problems & those of Entropy, Enthalpy and Gibbs Free Energy. (ST, PS, C) (1,2,3,4)
4. Demonstrate a fundamental understanding of Acids and Bases in terms of structure, strength and pH and to perform calculations involving the above quantities including buffers. (ST, PS, C) (1,2,4,5)
5. Demonstrate a working understanding of Buffers and their importance for the environment including living systems. (ST, CT, C) (2,3,5)
6. Show by successful completion of lab activities and reports, an understanding and compliance with appropriate safety practices and proper data acquisition skills and the use of this data in chemical calculations . (ST) (1,4)
7. List five positive educational outcomes of the lab experience and defend their significance in an oral report presented during the Lab Checkout & Closure session. (ST, C) (1,3,4)

GENERAL EDUCATION GOALS:

The objectives of this course supports the following General Education Goals: Problem Solving (PS), Critical Thinking (CT), Science & Technology (ST) and Communication (C)

THIS COURSE MEETS THE FOLLOWING:

General Education Course Requirement: Natural Sciences
Transfer Module Course Requirement: Natural Sciences

METHOD OF EVALUATING STUDENT ACHIEVEMENT:

- 1) Attendance/participation
- 2) Written Examinations
- 3) Oral Reports
- 4) Labs
- 5) Homework

Course Outline

COURSE CODE: CHEM 142 TITLE: FUNDAMENTALS OF CHEMISTRY II

OUTLINE PREPARED BY: DR. TOM STECKEL

TERM: SPRING YEAR: 2005

<u>WEEK</u>	<u>TOPIC</u>
1.	Ch 10 gases lab: introductory activity, graphing calculators (20 points)
2.	Ch 11 intermolecular forces etc. Lab: #13 behavior of gases, part b
3.	Ch 13 properties of solutions lab: #14 determination of r: the gas constant
4.	Exam I Ch 10, 11, 13 & labs (200 points); Begin Ch 14 chemical kinetics Lab: #19 colligative properties; freezing point depression
5.	Ch 14 continued Lab: #27 rates of a chemical reaction i, a clock reaction
6.	Ch 15 chemical equilibria lab: #28 rates of chemical reaction ii
7.	Ch 15 chemical equilibria continued, Exam II Ch 14, 15 & labs (200 points) lab: # 25 determination of solubility product constant
8.	Ch 16 acid base equilibria lab: #20 titration of acids and bases
9.	Ch 17 additional aspects of equilibria lab: #22 determination of the dissociation constant of a weak acid
10.	Ch 19 chemical thermodynamics lab practicum and Checkout & Closure (30 points)
11.	Final Exam Ch 16, 17, 19 & Labs (250 points)

Additional Documentation

CHEM 141 and CHEM 142 equal OSC 008

OBR Use

Action

Approved	
Additional Information Requested	
Rejected	
Date	