Syllabus for
CHE 112--General Chemistry II Lecture
3 Credit Hours
Fall 2009

I. COURSE DESCRIPTION

Continues the basic study of the physical and chemical properties of matter. Topics include thermodynamics, kinetics, equilibria, colligative properties, and electrochemistry.
Prerequisites: CHE 111 Lecture and Lab.
Corequisite: CHE 112 Lab.

CHE 112 is a three-credit-hour general chemistry course. The teaching mode is primarily lecture. The course is designed to help students in identifying and applying chemical principles and in visualizing their physical significance.

II. COURSE GOALS

The purpose of this course is to continue building a foundation of basic chemical vocabulary, concepts, and strengthen chemical problem-solving abilities.

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

A. Terminal Objectives

As a result of successfully completing this course, the student will be able to do the following:

1. State and discuss the essential concepts and characteristics of solutions, thermodynamics, kinetics, equilibria, and electrochemistry
2. Solve problems dealing with chemical solutions, thermodynamics, kinetics, equilibria, and electrochemistry

B. Unit Objectives

As a result of successfully completing this unit, the student will be able to do the following:

1. Perform calculations pertaining to concentrations and colligative properties.
2. Calculate various thermodynamic parameters.
3. Perform calculations involving rate laws and integrated rate laws.
4. Determine the concentrations of various chemical species in a system at equilibrium.
5. Predict whether or not a precipitate will form in a given solution.
6. Diagram galvanic and electrolytic cells and determine their cell potentials.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Materials

1. Textbooks
   Whitten, Kenneth, Raymond Davis, Larry Peck, and George Peck. General Chemistry, 8th ed. Belmont, CA: Brooks/Cole – Thomson Learning, 2007.
2. Einstruction Corp. Gen2RF Responder
3. One Semester Activation Code

B. Optional Materials

Keeney, Wendy, and Yi-Noo Tang. Student Solutions Manual. Belmont, CA: Brooks/Cole – Thomson Learning, 2004

V. POLICIES AND PROCEDURES

A. University Policies and Procedures

1. Attendance at each class or laboratory is mandatory at Oral Roberts University. Excessive absences can reduce a student's grade or deny credit for the course.
2. Students taking a late exam because of an unauthorized absence are charged a late exam fee.
3. Students and faculty at Oral Roberts University must adhere to all laws addressing the ethical use of others' materials, whether it is in the form of print, video, multimedia, or computer software. By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means.
4. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.
5. Students are to be in compliance with University, school, and departmental policies regarding ePortfolio requirements. Students should consult the ePortfolio handbooks for requirements regarding general education and the students' majors.
    a. The penalty for not submitting electronically or for incorrectly submitting an ePortfolio artifact is a zero for that assignment.
    b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

B. School and/or Department Policies and Procedures

1. The Department of Chemistry adheres to the Assessment policy concerning plagiarism as described in the University Catalog, "Written assignments using sources must demonstrate ethical and accurate use of source material. Plagiarism and any unethical or inappropriate use of sources will not be tolerated."
2. The following assessment actions will be taken in the of event of documented instances of plagiarism on written assignments, copying of homework assignments, or cheating during examinations:
    a. An automatic zero will be given for the assignment or exam.
    b. The original assignment or exam will be kept in the student file and a copy will be given to the student. This could have a negative impact on letters of reference and admission to graduate schools and other postgraduate programs.
    c. The Department will take repeated offences as grounds for further action.
3. Any ePortfolio activity required in this course must be completed and assessed prior to the end of the semester to receive course credit, otherwise a grade of a zero will be assigned.

C. Course Policies and Procedures

1. Evaluation Procedures
    a. *Examinations – count for 60% of course grade*
    There will be four exams during the semester, plus a final exam. The regular exams will be given during the normal fifty-minute class period.
    b. *Final Exam – counts for 15% of course grade*
    The final exam is comprehensive, is equal weight with the regular exams, and will be given during final exam week according to the university final exam schedule.
    c. *Quizzes – count for 15% of course grade*
    Quizzes will usually be given once per week and will be done with CPS Response pads and/or on paper.

d. *Homework – counts for 10% of course grade*
Homework will be assigned weekly. Assignments will range from 15-25 points each. A student must complete every assignment when it is given but may choose to resubmit incorrect homework problems until the exam over that material. Failure to finish an assignment the first time prevents students from getting credit for doing the work later. Students are encouraged to work on homework outside of class with other students in the course. Homework assignments will usually include a writing component that will be graded on grammar and spelling as well as correct answers of chemistry content.

e. Grading scale

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	≤ 59%

VI. COURSE CALENDAR

Week	Topic	Assignment
1	Solutions	Chapter 14
2	Solutions	Chapter 14
3	Thermodynamics	Chapter 15
4	Thermodynamics	Chapter 15
	Kinetics	Chapter 16
5	Kinetics	Chapter 16
6	Kinetics	Chapter 16
	Equilibrium	Chapter 17
7	Equilibrium	Chapter 17
8	Acids and Bases	Chapter 10
	Acid and Base Equilibria	Chapter 18
9	Acids and Base Equilibria	Chapter 18
	Hydrolysis	Chapter 19
10	Buffers	Chapter 18
11	Titrations	Chapter 19
	Solubility	Chapter 20
12	Solubility	Chapter 20
13	Electrochemistry	Chapter 21
14	Electrochemistry/Nuclear Reactions	Chapter 21 and 26
15	Final Examination Week	

Course Inventory for ORU's Student Learning Outcomes

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This course contributes to the ORU student learning outcomes as indicated below:
Significant Contribution – Addresses the outcome directly and includes targeted assessment.
Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.
Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.
No Contribution – Does not address the outcome.

The Student Learning Glossary at http://ir.oru.edu/doc/glossary.pdf defines each outcome and each of the proficiencies/capacities.

OUTCOMES & Proficiencies/Capacities	Significant Contribution	Moderate Contribution	Minimal Contribution	No Contribution
1 **Outcome #1 – Spiritually Alive** Proficiencies/Capacities				
1A Biblical knowledge			x	
1B Sensitivity to the Holy Spirit			x	
1C Evangelistic capability				x
1D Ethical behavior			x	
2 **Outcome #2 – Intellectually Alert** Proficiencies/Capacities				
2A Critical thinking	x			
2B Information literacy			x	
2C Global & historical perspectives			x	
2D Aesthetic appreciation			x	
2E Intellectual creativity		x		
3 **Outcome #3 – Physically Disciplined** Proficiencies/Capacities				
3A Healthy lifestyle			x	
3B Physically disciplined lifestyle			x	
4 **Outcome #4 – Socially Adept** Proficiencies/Capacities				
4A Communication skills		x		
4B Interpersonal skills		x		
4C Appreciation of cultural & linguistic differences			x	
4D Responsible citizenship			x	
4E Leadership capacity			x	