Syllabus for
CHE 111-General Chemistry I Lecture
3.0 credit hours
Fall 2012

I. COURSE DESCRIPTION

An introduction to the concepts of chemical bonding, electronic configurations, periodic trends, solution properties, chemical problem solving, and physical properties of gases. Teaches naming of inorganic ions and covalent molecules and dimensional analysis.
Prerequisite: One year of high school chemistry or permission based on placement test.
Corequisite: CHE 111 Lab.

II. COURSE GOALS

The teaching method in this course is primarily lecture, but will include working in small groups to solve sample problems, participating in class as either individuals or small groups by responding to questions through the use of Einstruction Response pads (clickers). The major topics discussed are dimensional analysis, atomic structure, states and properties of matter, nomenclature, stoichiometry, solutions, and bond formation. The course explains the facets of chemistry, their interrelationships, and how they relate to everyday life.

This course is designed to lay the background for succeeding courses in chemistry. The course is relevant for any student who wishes to gain an appreciation for the processes and discipline of a basic science. The course is designed to help the student do the following:

A. Cultivate good work habits by utilizing the available resources such as problems at the end of chapters, working old exam questions, completing online quizzes, finishing homework assignments, and participating in class by answering questions through the use of Einstruction Response pads.

B. Learn to perform mathematical operations such as: isolating unknowns in a general equation, solving dimensional analysis problems, and working gas law and vapor pressure problems.

C. Comprehend and apply fundamental chemical concepts such as: dimensional analysis, nomenclature, stoichiometry, chemical bonding, Lewis structures, and gas laws. Be prepared to apply these concepts to more in depth studies and in different sequences.

D. Lay the foundation for future upper division classes that may ultimately lead to a career in medicine, chemical industry, forensics, pharmacy, energy, agriculture, textiles, or nutrition.

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

Terminal Objectives
As a result of successfully completing this course, the student will be able to do the following:
A. Perform dimensional analysis by working problems dealing with unit conversions stoichiometry, gas laws, and vapor pressure.
B. Write and balance chemical equations. *(SC. 7.c.6 and 7.c.7)

C. Identify electrons through the use of quantum numbers, write electronic configurations of various chemical species, and identify the type of bonding that exists in selected chemicals.
D. Draw Lewis structures and determine molecular shapes.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Textbooks

1. Whitten, Kenneth W., Raymond Davis, M. Larry Peck and George Stanley. General Chemistry, 9th edition. Brooks/Cole-Cengage Learning, 2010.

2. Einstruction Corp. Gen2RF Responder

3. One Semester Activation Code

B. Optional Materials

1. Kenney-Kennicutt, Wendy. General Chemistry, 9th edition, Student Solutions Manual. Cengage Learning-Brooks/Cole, 2010.

2. Other
   a. Scientific Calculator
   b. Periodic Table

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, electronic, video, multimedia, or computer software. Plagiarism and other forms of cheating involve both lying and stealing and are violations of ORU's Honor Code: "I will not cheat or plagiarize; I will do my own academic work and will not inappropriately collaborate with other students on assignments." Plagiarism is usually defined as copying someone else's ideas, words, or sentence structure and submitting them as one's own. Other forms of academic dishonesty include (but are not limited to) the following:
   a. Submitting another's work as one's own or colluding with someone else and submitting that work as though it were his or hers;
   b. Failing to meet group assignment or project requirements while claiming to have done so;
   c. Failing to cite sources used in a paper;
   d. Creating results for experiments, observations, interviews, or projects that were not done;
   e. Receiving or giving unauthorized help on assignments.

   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. Penalties for any of the above infractions may result in disciplinary action including failing the assignment or failing the course or expulsion from the University, as determined by department and University guidelines.

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 the Whole Person Assessment requirements. Students should consult the Whole Person Assessment handbooks for requirements regarding general education and the students' majors.
    a. The penalty for not submitting electronically or for incorrectly submitting an 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 Biology and 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 are not 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 Whole Person Assessment 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 incomplete will be assigned.

C. Course Policies and Procedures

1. Evaluation Procedures

    Examinations

    There are four exams given during the course of the semester plus a final exam given during finals week. The lowest of the first four exam grades will be dropped; therefore, there are no makeup exams. If a second exam is missed for a valid reason, then a makeup can be scheduled.
2. Quizzes/Homework

    There are five online quizzes (mostly descriptive in nature) and five sets of homework (mostly involving calculation or short answer type questions) given during the course of the semester. Homework from the textbook will also be collected.

3. Record of Grades

	% of Course	% Received
Hour exams (100 points each) (count 3 or 4)	54	_____
Final exam	17	_____
Online Quizzes (5)	10	_____
Homework (5)	10	_____
Class Participation (CPS)	5	_____
Homework from textbook	2	_____
Attendance	2	_____

4. Approximate curve for overall course
   - A 88-100%
   - B 78-87%
   - C 65-77%
   - D 55-64%
   - F less than 55%

5. Other Policies and/or Procedures
   a. General Chemistry is not an easy course. However, with quality study time, the material can be assimilated into a usable body of knowledge that will be the basis for future courses in chemistry. Each student should spend two to three hours studying for each hour of lecture. To achieve maximum results the student should do the following:
      (1) Read ahead. Each lecture will cover approximately ten to twelve pages of text.
      (2) Work some of the homework problems at the end of each chapter.
      (3) Ask questions over unclear material.
   c. The lecturer, lab instructor, and tutors are eager to assist you with problems.
   d. **Student should not attempt to cram for exams**! Each chapter builds on the previous chapters, so students should not get behind.

6. Whole Person Assessment Requirements
(CHE or BMC majors only): None.

VI. COURSE CALENDAR

WEEK	WEEK OF	TOPIC	WHITTEN REFERENCE
1	August 20	Matter and Units	Chapter 1 (secs. 1-13)
2	August 27	Atoms, Molecules and Nomenclature	Chapter 2 (secs. 1-3
		Homework #1	Chapter 4 (secs. 1,5-6)
3	September 3	Mass Relationships **Quiz #1**	Chapter 2 (secs. 4-10)
		Chemical Reactions	Chapter 4 (secs. 2 and 3)

WEEK	WEEK OF	TOPIC	WHITTEN REFERENCE
4	September 10	Chemical Reactions and Solutions	Chapter 4 (sec. 8-13)
		Homework #2	
		EXAM 1	
5	September 17	Structure of Atoms **Quiz #2**	Chapter 5
6	September 24	Structure of Atoms	Chapter 5
7	October 1	Chemical Periodicity	Chapter 6 (secs. 1-8)
8	October 8	Chemical Equations and Stoichiometry	Chapter 3
	October 15	**FALL BREAK**	
9	October 22	Stoichiometry **Homework #3**	Chapter 3
		EXAM 2	
		Chemical Bonding **Quiz #3**	Chapter 7
10	October 29	Chemical Bonding	Chapter 7
11	November 5	Chemical Bonding **Homework #4**	Chapter 7
12	November 12	Molecular Structure and Bonding Theories	Chapter 8
		Quiz #4	
13	November 19	**EXAM 3**	
		Intermolecular Forces and Liquids	Chapter 13 (secs.1-13)
14	November 26	Intermolecular Forces and Liquids	Chapter 13 (secs.1-13)
		Gases **Homework #5**	Chapter 12
15	December 3	Gases **Quiz #5**	Chapter 12
		EXAM 4	
16	December 10	**FINAL** examination week	

Course Inventory for ORU's Student Learning Outcomes

General Chemistry I Lecture – CHE 111
Fall 2012

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		