

**NORTHEASTERN TECHNICAL COLLEGE  
COURSE OUTLINE**

<b>COURSE:</b>	<b>PREFIX NO.</b>	<b>EFFECTIVE DATE</b>	<b>NEXT REVIEW DATE</b>		
CHM	110	Spring 2011	Spring 2012		
<b>TITLE:</b>		<b>CREDITS</b>	<b>CONTACTS</b>		
			<b>CLASS</b>	<b>LAB</b>	<b>TOTAL</b>
College Chemistry I		4	3	3	4

**PREREQUISITES:** CHM 100 or recent chemistry with a grade of "C" or better, Math 101 with a grade of "C" or better.

**DESCRIPTION:** This is the first course in a sequence which includes the following topics: atomic and molecular structure, nomenclature and equations, properties, reactions and states of matter, stoichiometry, gas laws, solutions, and equilibria.

**TEXTBOOK(S) OR ALTERNATIVE:** Ebbing, D.D. and Gammon, S.D. 2009. General Chemistry [9<sup>th</sup> Ed.] Houghton Mifflin, New York.

**MATERIALS (specifying those to be purchased by student):**

**COLLATERAL READING:**

**CLASS MANAGEMENT ACTIVITIES (Attendance, tardies, testing, etc.):**

**Academic dishonesty:** Students are expected to do their own work. Please refer to the NETC Student Code and Grievance Procedure for a definition of academic dishonesty and an outline of the disciplinary action that may result therefrom.

**Attendance:** According to college policy, a student may miss 20% of the scheduled class periods. Students are expected to attend all scheduled classes, absences are allowed for unavoidable hardships such as illness or car trouble. When a student exceeds this limit, he or she will be dropped for excessive absences, with the resulting grade of "F". If the student initiates the withdrawal before midterm, a grade of "W" will be used. After midterm, the grade of "W" will only be used for students who are passing the course; if a student who is not passing initiates a drop after midterm, he or she will receive a grade of "WF".

**Tardies:** A student is considered tardy if he or she arrives for class after the scheduled time. Three tardies constitute 1 hour of absence.

**Electronic Devices in the Classroom:**

To minimize classroom disruptions and to protect the integrity of testing, activated electronic communication devices such as pagers, beepers, and telephones are not permitted in classrooms at NETC. The only exception is for on-call emergency personnel (police, fire, EMS); these students are required to notify the instructor of their need for such devices with documentation verifying employment. This information must be provided at the beginning of the term and at the beginning of each applicable class session.

**Student ID:** It is mandatory that every student wear his or her student ID at all times. Students will be dismissed from class if not wearing their ID. The student may get his/her ID and return to class before the midpoint of the class. If the student cannot get his/her ID and return to class by the midpoint, the instructor will record the absence.

**Disabilities Statement:** Students with disabilities are encouraged to contact the Vice President for Student Services to discuss needs or concerns as they pursue an academic program and participate in campus life. The Vice President for Student Services will provide guidance regarding official documentation of disabilities and/or accommodation of needs. (See College Catalog)

**RESOURCES:** (A-V, persons, tools/equipment): The following equipment may be used in lecture or lab settings: overhead projector, TV/VCR/DVD, computer, XGA or LCD projector, microscopes, various chemical lab equipment as specified in individual labs.

**ASSESSMENT:** Assessments will be assigned by the instructor throughout the semester.

**COURSE TOPICAL OUTLINE (List topics and sub-topics of course) and Calendar or approximate length of time devoted to topic.**

Chapter 1 Chemistry and Measurement (1-1.5 weeks)

Chapter 2 Atoms, Molecules, and Ions (1.5-2 weeks)

Chapter 3 Calculations with Chemical Formulas and Equations

(1.5-2 weeks)

- Chapter 4 Chemical Reactions (1-1.5 weeks)
- Chapter 7 Quantum Theory of the Atom (1.5 weeks)
- Chapter 8 Electron Configurations and Periodicity (1.5 weeks)
- Chapter 9 Ionic and Covalent Bonding (1.5 weeks)
- Chapter 10 Molecular Geometry and Chemical Bonding Theory  
(1.5 weeks)
- Chapter 5 The Gaseous State (2 weeks)
- Chapter 11 States of Matter; Liquids and Solids (1 week)

#### **TENTATIVE TOPICAL LAB SCHEDULE**

##### **WEEK**

##### **LAB**

- |   |   |
|---|---|
| 1 | Orientation   |
| 2 | Glass Manipulation<br>Filtration and Distillation     |
| 3 | Molecular Models<br>Boiling Point                     |
| 4 | Blue Cupric Sulfate<br>Chemistry of Combustion        |
| 5 | Empirical Formula of an Oxide                         |
| 6 | Precipitation and Exchange                            |
| 7 | Flame Tests<br>Reduction of Copper (II) Oxide         |
| 8 | The Manhattan Project (DVD)                           |
| 9 | The Activity of Metals<br>The Heat Capacity of Metals |

10	Solubility Curves
11	Exothermic Reaction Endothermic Reaction
12	The Ubiquitous Styrofoam Cup
13	Household Acids and Bases
14	Natural Radioactivity
15	Activity of Metals Slime Lab Student Presentations

**LEARNING OUTCOMES:**

1. Students will be able to perform basic chemical laboratory exercises and accurately measure (mass, volume) chemicals needed for use in lab.
2. Students will be able to use chemical nomenclature and atomic symbols to identify chemicals on the Periodic Table.
3. Students will be able to calculate the amount of chemicals used during a chemical reaction using stoichiometry.
4. Students will be able to describe how atoms bond based on their valence electrons.
5. Students will be able to describe how a gas reacts using gas law calculations.

**COLLEGE-WIDE COMPETENCIES:**

1. The student will be able to collect information needed for a given task.
2. The student will be able to analyze information.
3. The student will be able to evaluate information to determine its usefulness.
4. The student will be able to apply knowledge to make decisions and solve problems.

**INSTRUCTIONAL METHODS TO COMPLETE OBJECTIVES:** Lectures, laboratory work, videos, and slides on topics in chemistry may be used. Science projects and reports may also be used to supplement instruction.

**EVALUATIVE METHODS TO APPRAISE OBJECTIVES:** Course assignments may include tests, lab reports, and other activities as outlined in the syllabus or by handouts. A comprehensive final exam will be given. No lecture test grades will be dropped. Practical tests, objective tests, and/or lab reports may be used in lab as assessments, with one lab report/assignment being dropped before final averaging.

**COURSE GRADES WILL BE A WEIGHTED AVERAGE OF THE FOLLOWING COMPONENTS:**

<u>Final Average</u>		
Lecture test average	=	50%
Lab average	=	25%
Outside assignments	=	05%
Cumulative Final Exam	=	20%

**GRADING SCALE:**

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
BELOW		60	=	F