Course Syllabus
CHM-140 General Chemistry I

Semester and year:
Course Number:
Meeting Times and Locations:

Instructor:
Office Location:
Phone:
Office Hours:
Email Address:

COURSE DESCRIPTION:
CHM-140 General Chemistry I is a study of the fundamental laws and theories of chemistry. Topics covered include units of measurement, dimensional analysis, stoichiometry, aqueous reactions, thermochemistry, electronic structure of the atom, periodicity, chemical bonding, molecular geometry and properties of gases.

CREDITS/HOURS: 3 credits/3 hours

PREREQUISITES: MAT-032 or MAT-035 or equivalent by an appropriate placement as a result of the New Jersey Basic Skills Placement Test
AND
CHM-100, or a passing score on the CHM-100 challenge exam.

RECOMMENDED COREQUISITE: CHM-141 AND MAT-045 are strongly recommended.

GENERAL ED COURSE: Yes

STUDENT LEARNING OBJECTIVES: As a result of meeting the requirements in this course, students will be able to:

1. Use metric units.
2. Develop and use conversion factors to solve problems.
3. Write names and formulas for inorganic compounds.
4. Identify and name acids, bases, salts and oxides.
5. Solve stoichiometry problems.
6. Apply the empirical gas laws.
7. Explain and interpret the kinetic theory of gases.
8. Interpret the enthalpy changes of chemical processes.
9. Explain the wave nature of light and the modern view of the atom.
10. Use the principles of quantum mechanics to predict the electron configurations of atoms and ions.
11. Explain the nature of chemical bonds.
12. Predict the three-dimensional shapes of small molecules.
13. Define and explain technical terms used in chemistry.
ASSESSMENT MEASURES:
The student learning objectives will be assessed by:
1. Assigned homework problems from the text and OWL
2. Quizzes
3. Class participation
4. Unit Examinations (a minimum of 3)
5. Final Examination (comprehensive)
6. A writing component in the form of essays or short answer questions on examinations.

At the discretion of the instructor, assessment measures may be somewhat modified.


note: Text comes with OWL and Go Chemistry. The Student Solutions Manual and Study Guide are available as separate purchases.

COURSE CONTENT:

Chapter 1: Basic Concepts of Chemistry. (matter, elements, compounds and measurements)
Students are expected to review most of this material on their own.

Let’s Review: The Tools of Quantitative Chemistry: Mathematics of Chemistry. (measurement, scientific notation, significant figures and dimensional analysis)

Chapter 2: Atoms, Molecules and Ions. (includes mole concept and percent composition)

Chapter 4: Stoichiometry: Quantitative Information about Chemical Reactions. (mass relationships, limiting reactant, chemical analysis, molarity, pH) (Omit Section 4.8; Spectroscopy. It is covered in CHM-240 and CHM-241.)

Chapter 3: Chemical Reactions. (equations, balancing, aqueous solutions, equilibrium, precipitation reactions, acid base reactions, oxidation-reduction) (Omit balancing redox reactions in acidic and basic media. It is covered in CHM-240 and CHM-241.)

Chapter 11: Gases and Their Properties. (Section 11.8; Non-ideal Behavior of Gases: Real Gas Behavior is covered qualitatively only.)


Chapter 6: The Structure of Atoms. (Section 6.5 The Uncertainty Principle is covered qualitatively only.)

Chapter 7: The Structure of Atoms and Periodic Trends.
Chapter 8: Bonding and Molecular Structure: Fundamental Concepts.

Chapter 9: Bonding and Molecular Structure: Orbital Hybridization and Molecular Orbitals.

SUPPLEMENTARY READINGS / MATERIALS:


OTHER REQUIREMENTS:
A scientific or graphing calculator is required.

GRADING POLICY:

Instructor’s Grading Policy:
The grading policy for each section will be provided by the individual instructor at the first class meeting. However, the use of dimensional analysis/conversion factors to solve problems is required.

General Guidelines:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Assigned homework problems from the text and OWL</td>
<td>not more than 10%</td>
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<tr>
<td>Quizzes</td>
<td>not more than 20%</td>
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<tr>
<td>Class participation</td>
<td>not more than 5%</td>
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<tr>
<td>Unit Examinations (a minimum of 3)</td>
<td>50 to 75%</td>
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<tr>
<td>Final Examination (comprehensive)</td>
<td>15 to 25%</td>
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1. Any examination not taken will receive a grade of zero. Make-up examinations will be administered in accordance with the instructor's policy.

2. Any student caught cheating (including using unauthorized formula sheets of any kind) will receive a grade of zero on that particular examination or paper. That zero cannot be replaced by any other examination grade or extra work.

Please read The Bergen Community College Statement on academic integrity as found in the college catalog.
3. Late work is not accepted unless specifically authorized by the instructor.
4. Instructors may make minor modifications to the grading guidelines.

**ATTENDANCE/LATENESS POLICY:**
All students are expected to attend punctually every scheduled meeting of each course in which they are registered. Attendance and lateness policies and sanctions are to be determined by the instructor for each section of each course. These policies will be established in writing by each instructor and distributed to students at the start of the semester. Attendance will be kept by the instructor for administrative and counseling purposes.

**OTHER POLICIES:**

**Electronic Devices:**
The use of portable electronic devices such as pagers and smart phones is not permitted while class is in session. Please silence these devices before entering class.

**Code of Student Conduct:**
Students are encouraged to read, understand and follow the rules and standards of conduct as explained in the Student Handbook. The Student Handbook is available in the Office of Student Life and on the BCC website.

**STUDENT SUPPORT SERVICES:**
The General Chemistry support class, CHM-142, is recommended for students experiencing difficulty with chemistry-related arithmetic and algebraic problem solving. Late registration for this 1 credit hour class is allowed and encouraged.

Additionally, **The STEM Learning Center in Room S-315** and the Tutoring Center (L-125) provide student support in chemistry, math and other sciences.

Faculty office hours may be a productive vehicle for assistance in understanding the course material. The BCC Library provides extensive support services for student research.

**Services for Students with Disabilities:**
A wide variety of services are available to students with documented disabilities through the Office of Specialized Services (OSS). For further information, go to the OSS website: [www.bergen.edu/oss](http://www.bergen.edu/oss).

**FACULTY ABSENCE PROCEDURE:**
A daily listing of cancelled classes will appear in a glass case near the main corridor on the first floor. Another such listing will appear in a glass case in Ender Hall. Students can consult these cases before going to class. Cancelled classes are also listed at bottom of the BCC website page, under class cancellations. Under no circumstances are notices taped to classroom doors regarding class cancellations binding.

If students find a class cancelled which has not been listed, they should report this to the Divisional Dean’s Office, A-325 or the Evening Office L-113.

All BCC students enrolled in credit courses are entitled to a WebAdvisor account. With WebAdvisor, you may register online, pay your bill, check your schedule, room assignments, GPA, and find out what courses you need to take. To find out more about WebAdvisor or to sign up online, visit [http://go.bergen.edu](http://go.bergen.edu)! While there, please make sure you give us your preferred email address. You'll find directions how to do this at [http://go.bergen.edu/email](http://go.bergen.edu/email).

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