COURSE DESCRIPTION:
CHM–102 Chemistry in Context is a student-centered approach for non-science majors to learn fundamental chemistry and its linkage to consumer issues, public policy, business and international affairs. Core topics include chemistry terminology, formulas, reactions, scientific measurements, graphing, shapes of molecules, chemical toxicity, green chemistry, consumer chemistry and energy sources. Laboratory activities emphasize fundamental concepts and measurements. Use of scientific and governmental websites, papers, oral presentations and discussion groups draw on students’ major fields of study.

CREDITS/HOURS: 3 hr lecture, 3 hr lab, 4 credits

PREREQUISITES: MAT-011 or equivalent by placement as a result of a basic skills placement test

GENERAL ED COURSE: Yes

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

1. Define and explain basic technical terms used in chemistry.
2. Write names and formulas for simple compounds.
3. Use scientific and metric units correctly.
4. Use conversion factors to solve problems.
5. Apply basic chemistry laws.
6. Write a balanced chemical equation.
7. Solve simple stoichiometry problems.
8. Identify and name important acids and bases.
9. Interpret the enthalpy changes of chemical processes.
10. Explain the wave nature and particle nature of light.
11. Explain the reasons for the changes in the ozone layer and health consequences.
12. Identify the causes of indoor and outdoor air pollution, greenhouse gasses, ground and water pollution and resulting health consequences.

13. Discuss the pros and cons of efforts to solve local and global pollution, nutrition, and medicine issues and the consequences on economies, living standards and societies.
14. Explain Green Chemistry using guided and independently researched data.
15. Access government (e.g. EPA, NASA, NOAH) and scientific websites, download scientific data and present data in tabular and/or chart form in a short written or poster report form and an oral (15 to 20 min) presentation.
16. Apply the scientific method and increase critical thinking skills.
ASSESSMENT MEASURES:
The student learning objectives will be assessed by:
1. Graded homework problems assigned from the text;
2. Written assignments, short papers and quizzes;
3. Laboratory experiments and exercises;
4. Website searches for scientific data;
5. Oral presentation on a specific chemistry-related scientific topic;
6. Written examinations and an optional comprehensive final examination.

Bound Book: ISBN# 978-1-259-63814-5, 
Loose Leaf: ISBN# 978-1-260-15176-3

COURSE CONTENT:
Chapters 1 to 8 are the core chapters for this course.

Chapter 1: Portable Electronics: The Periodic Table in the Palm of your Hand

Chapter 2: The Air We Breathe

Chapter 3: Radiation from the Sun

Chapter 4: Climate Change

Chapter 5: Energy from Combustion

Chapter 6: Energy from Alternative Sources
Chapter 7: Energy Storage

Chapter 8: Water Everywhere: A Most Precious Resource

The instructor will choose 2 to 3 additional chapters from the following.

Chapter 9: The World of Polymers and Plastics

Chapter 10: Brewing and Chewing

Chapter 11: Nutrition

Chapter 12: Health and Medicine

Chapter 13: Genes and Life

Chapter 14: Who Killed Dr. Thompson? A Forensic Mystery

Supplementary Reading Material:


Other Requirements:
A scientific calculator is required.

General Grading Policy:
A. Unit Examinations (a minimum of 3), Final Exam and Quizzes 50 %
B. Papers, homework, Oral Presentations and Discussion Groups 25 %
C. Laboratory Work 25 %
D. Additional policies:
1. Late work is not accepted.
2. Any examination not taken will receive a grade of zero. Make-up examinations will be administered in accordance with the instructor's policy.
3. Any student caught cheating (including using unauthorized formula sheets of any kind) will receive a grade of zero on that particular exam/test. That zero cannot be replaced by any other grade. Please read The Bergen Community College Statement on academic integrity as found in the college catalog and BCC Student Handbook.
4. At the end of the semester, the grade on the final examination may be substituted for the lowest unit grade for the purpose of calculating the course grade provided that the final examination grade is higher than the lowest examination grade. At the discretion of the instructor, this policy may be somewhat modified.
5. Exams will include a writing component in the form of a short essay or paragraph.

Instructor's Grading Policy:
Will be provided separately by the individual instructor

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 will be established in writing on the individual course outline. 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 cell phones is not permitted while class is in session. Please silence these devices before entering class.

The use of cell/smart phone calculators is not permitted.

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

Student and Faculty Support Services:
Students experiencing difficulty with the arithmetic or problem solving aspects of this course should acquaint themselves with the services of the Tutoring Center.

The BCC Library provides extensive support services for student research.

Faculty office hours may be a productive vehicle for assistance in understanding the course material.

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 or go to Room L-115.

**FACULTY ABSENCE PROCEDURE:**

Cancelled classes are listed under class cancellations at bottom of the BCC website page.

Under no circumstances are notices regarding class cancellations taped to classroom doors.

If students find a class cancelled which has not been listed, they should report this to the Divisional Dean’s Office, A-304 or the Evening Office C-107.

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>! 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>.

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CHM–102 Chemistry in Context Laboratory Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Check in; Safety; Instructor should distribute and discuss Divisional</td>
<td>vi</td>
</tr>
</tbody>
</table>

Experiment 1: Preparation and Properties of Gases in Air
Experiment 3: Graphing Exercises. and/or Computer Exercises: Good Ozone (up there); Bad Ozone (down here)
Experiment 6: Color and Light
Experiment 8: Molecular Models, Bonds and Shapes.
Chemical Reactions: Handout
Experiment 11: Verifying Molar Ratios in Chemical Reactions
Experiment 13: Comparing the Energy Content of Fuels
Conductivity: Electrolytes and Ions: Handout and/or Experiment 16: Detecting Ions in Solutions
Experiment 17: Exploring Electrochemistry
Experiment 19: Reactions of Acids with Common Substances
Acidity and pH: Using a pH meter (oral directions)
Experiment 20: Characterizing Acidic and Basic Materials
Experiment 33: Analysis of Vinegar
Start Oral Reports
Oral Reports: Computer Exercise: Acid Rain
Experiment 21: Acid Rain
Oral Reports
Experiment 22: Investigating Solubility
Oral Reports
Experiment 24: Identifying Common Plastics
Oral Reports
Synthesizing Aspirin (Handout)
Experiment 31: Measuring the Sugar Content in Beverages
Check Out/Student Assessment of Learning Gains
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>! 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>. CHM102CIICLabSchStudentfa.2017