

Contemporary Chemistry Syllabus

CHM1020C, Summer 2019, June 24 - July 26

Course & Faculty Information

Lecturer: TBA

E-mail: TBA

Time: Monday through Friday

Teaching hour: 75 (3 contact hours each day)

Office hours: 2 hours (According to the teaching schedule)

Credit: 4

Course Description

This is a one-semester course for the non-science major. Presumes no chemistry or mathematics background. Basic chemical principles are covered and related to larger topics that may include the chemistry of water and the atmosphere, energy sources, natural and man-made materials and environmental issues. Laboratory experiments are chosen that support these topics. Lab fee required.

Textbook Information

Chemistry In Context

Author: American Chemical Society

ISBN: 9781307011531

Publisher: Mcg/create

Edition: 9

Collegewide Student Learning Outcomes

The Collegewide Student Learning Outcomes assessed and reinforced in this course include the following:

- Communication
- Critical Thinking
- Scientific and Quantitative Reasoning
- Physical Science Discipline Outcomes

Measurable Course Objectives

Measurable Course Objectives are outcomes students are expected to achieve by the end of the course.

- Demonstrate knowledge of the names and symbols of elements and the general structure of the Periodic Table of Elements.
- Demonstrate knowledge of the names and symbols of elements and the general structure of the Periodic Table of Elements.
- Demonstrate an understanding of the structures of atoms, isotopes and ions.
- Demonstrate the ability to write and interpret chemical formulas and correctly balance chemical equations.
- Demonstrate an understanding of the differences between physical and chemical properties and physical and chemical changes.
- Demonstrate an understanding of the rules for naming simple covalent and ionic compounds.
- Demonstrate an understanding of the differences between pure substances (elements and compounds) and mixtures (homogeneous and heterogeneous).
- Demonstrate an understanding of the Earth's atmosphere and its chemistry, including its layers, composition, air pollution, ozone chemistry and global climate change.
- Demonstrate an understanding of the chemistry of aqueous media, including pure water, solutions and acid/bases.
- Demonstrate an understanding of the formulas, structures and names of simple organic molecules and functional groups and how they relate to energy sources, nutrition and materials.
- Demonstrate an understanding of nuclear reactions and nuclear processes, including radioactive decay and nuclear fission.
- Research a current chemistry-related topic and present the information in a written and/or oral format.

Homework

Chemistry is best learned through working problems. To this end, homework assignments will be assigned regularly. Assignments may be submitted prior to the due date, but will not be accepted late. These problems are for you to assess your understanding of the material. It is encouraged that you work on these assignments in groups.

Grading

Your grade will consist of the following

Homework	150 pts
Quizzes	50 pts
Exams, 3 @ 150 pts each	450 pts
Labs	150 pts
Final Exam	200 pts
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Total	1000 pts

Grade Scale

A = 90-100%

B = 80-89%

C = 70-79%

D = 60-69%

F = Below 60%

Course Outline:

Please note that this outline is meant to give an overview of the major concepts this course. Changes may occur in this calendar as needed to aid in the student's development.

Week 1

- Ch 1: Portable Electronics – The Periodic Table in the Palm of Your Hand

Lab: Mystery Powders

Lab: Percent Composition – Oreo cookies

- Ch2: The Air We Breathe

- Ch 3: Radiation from the Sun

Lab: Effectiveness of sunscreens and the chemistry of “sun paper”

Lab: Stoichiometry of Baking Soda

Week 2

- Ch 4: Climate Change

- Exam1

- Ch 5: Energy of Combustion

Lab: Heat of combustion of Cheetos

Lab: Making Biodiesel

- Ch. 6: Energy from Alternative Sources

Lab: Half-Life of Paper, M & M's, pennies, or puzzle-pieces

Week 3

- Ch 7: Energy Storage- Electrochemistry

Lab: Dye-Sensitized Solar Cells

- Exam2

- Ch 8: Water Everywhere

Lab: Acids and Bases: Determination of the % of acetic acid in vinegar

- Ch 9: The World of Polymers and Plastics

Week 4

- Exam 3

- Ch 10: Brewing and Chewing

Note: this lab also connects to Ch 9 (Polymers)

Lab: Making “caviar” with spherification

- Ch 11: Nutrition

Lab: Determination of the amount of Vitamin C in vitamin tablets

Lab: % of Fat in Potato Chips

Lab: making Cheese

Week 5

- Ch 12: Health and Medicine

Lab: “Equilibrium in a Syringe”

Lab: Equilibrium in Milk of Magnesia

- Ch 13: Genes and Life
- Final Exam

Academic Integrity

As members of the Seminole State College of Florida community, students are expected to be honest in all of their academic coursework and activities.

Academic dishonesty, such as cheating of any kind on examinations, course assignments or projects, plagiarism, misrepresentation and the unauthorized possession of examinations or other course-related materials, is prohibited.

Plagiarism is unacceptable to the college community. Academic work that is submitted by students is assumed to be the result of their own thought, research or self-expression. When students borrow ideas, wording or organization from another source, they are expected to acknowledge that fact in an appropriate manner. Plagiarism is the deliberate use and appropriation of another's work without identifying the source and trying to pass-off such work as the student's own. Any student who fails to give full credit for ideas or materials taken from another has plagiarized.

Students who share their work for the purpose of cheating on class assignments or tests are subject to the same penalties as the student who commits the act of cheating.

When cheating or plagiarism has occurred, instructors may take academic action that ranges from denial of credit for the assignment or a grade of "F" on a specific assignment, examination or project, to the assignment of a grade of "F" for the course. Students may also be subject to further sanctions imposed by the judicial officer, such as disciplinary probation, suspension or dismissal from the College.