Course Code: CHEM101_O7

Online

Semester: Spring 2021
Day(s): NA Online
Time(s): NA Online
Classroom: NA Online
Instructor: Dr. Longstaff
Office Hours: by appointment

Email: slongstaff@goodwin.edu

Prerequisite/Co-requisites: Math 125

Course Description

The course is a survey study of chemistry. Emphasis is laid on the aspects of general, organic, and biological chemistry. The course will provide basic information about the metric system, measurements, conversions, matter and energy, nuclear radiation, chemical reactions, solutions, gas laws, acids and bases, as well as general concepts of organic chemistry, and the major organic compound groups essential for life (carbohydrates, lipids, and proteins and Nucleic Acids). Laboratory sessions are coordinated with the lectures online. It emphasizes experimentation application of the lecture content. The course is relevant to the students in the General Sciences, Health Sciences and Environmental Health.

Course Goal

- Use the language of chemistry to explain the behavior of chemical substances.
- Draw and interpret structures of simple ionic and molecular compounds.
- Solve quantitative problems (stoichiometric) involving chemical formulas and equations.
- Classify matter by its state and bonding behavior using the periodic table as a reference.
- Describe properties of 3 major classes of biomolecules: carbohydrates, lipids and proteins.
- Record and interpret data otained from experimentation.
- Perform laboratory experiments demonstrating safe and proper use of standard chemistry glassware and equipment.

Required Text

- CHEMISTRY: AN INTRODUCTON TO GENERAL, ORGANIC, AND BIOLOGICAL CHEMISTRY, 13th EDITION, KAREN TIMBERLAKE, ISBN – 13: 978- 0-13-442135- 3
- Laboratory Kit provided by eScience Laboratories (includes personal protective equipment, including safety glasses)
  Scientific calculator.

Student Learning Outcomes and Assessment Methods

Learning Outcomes	*Assessment Methods*
1. Measurement, Sig Figures, Scientific Notation, Conversions using dimensional Analysis	Quizzes, Exams, Labs and class interactives, Participation, Lab Reports
2. Matter, Specific heat, Change of States, Periodic Table of Elements, Symbols, Atomic Structure, Electronic Arrangement, Isotopes, VSEPR theory. Ionic and Molecular Bonding	Hands on labs including Vernier Equipment, Quizzes, Exams. Prelab And Post lab. Participation
3. Moles, Molar Mass, Stoichiometry, Chemical Equations, balancing and Classification.	Interactives, Quizzes, Exams, Participation
4. Properties of Gases including Gas Laws, Solutions, Electrolytes, Molarity, Dilution including Osmosis and Dialysis. Acids and Bases in detail including PH.	Class Discussions, Prelab, Post labs, Quizzes and Exams.
5. Organic Chemistry, Structure of Alkanes, Alkenes, Alkynes, Isomers, Aromatic Compounds, Recognize all functional groups.	Exams, Homework assignments, quizzes. Relevant hands on labs.
6. Describe the elementary aspects of three major classes of biomolecules: carbohydrates, lipids and proteins. Perform laboratory Excecises following Safety rules	Quizzes, Labs, Exams, Home work assignments

Grading Policy

Student performance in this course is assessed using multiple, varied methods in the areas listed below and based on the expectations as described in the syllabus and outlined in assessment scoring guides or rubrics. If you do not understand the expectations, it is your responsibility to ask the instructor questions.

Class Participation/Discussions	5%
Quizzes	10%
Tests	45%
Laboratory	25%
Final Exam	15%
Total:	100%

Grading Key

93-100 = A	80-82 = B-	67-69 = D+
90-92 = A	77-79 = C+	63-66 = D
87-89 =B+	73-76 = C	60-62 = D-
83-86 = B	70-72 = C-	Below 60 = F

Religious Observances: Goodwin faculty are strongly encouraged to plan assignments and examinations with religious observances and holidays in mind. If an examination, quiz, or in-class assignment should occur on a religious observance or holiday, faculty members are advised to permit students to make up the exam, quiz, or assignment within a reasonable time after the religious observance or holiday**.** A full calendar of religious observances and holidays can be accessed at https://interfaithaction.org/calendar/.

Assessment Methods

This section of the syllabus contains a listing with brief descriptions of the assessment methods for this course. They are designed to align with the student-learning outcomes and provide you with varied ways to demonstrate mastery of the course content. Additional instructions and related scoring guides or rubrics are posted to Blackboard.

Class Participation/Discussion (5%): Group discussion and Problem solving

Quizzes (10%): Weekly quizzes will be based on assigned readings. ***Each quiz must be completed before the end of the week.***

Tests (45%): There will be three midterm exams, which will be available from Friday 12:00 AM until Sunday 11:59 PM during the exam week.

Laboratory (25%): Experiments will be completed using the EScience lab kit and submitted online.

Final Exam (15%): Common Cumulative Final Exam

Course Outline / Class Schedule*

Week Date	Topic(s) Covered	Textbook Reading	Laboratory Exercise Description
1 1/11-1/17	CHEMISTRY AND MEASUREMENTS ENERGY AND MATTER	CH 2 & 3	Lab 1. Introduction to Laboratory Safety Procedures Lab 2. Introduction to Science
2 1/18-1/24	ATOMS AND ELEMENTS NUCLEAR CHEMISTRY	CH 4 & 5	Lab 9. Nuclear Chemistry
3 1/25-1/31	IONIC AND MOLECULAR COMPOUNDS	CH 6	Lab 5. Electron Configuration
4 2/1-2/7	CHEMICAL REACTIONS AND QUANTITIES	CH 7	Lab 6. Discovering the 5 Types of Chemical Reactions
5 2/8-2/14	EXAM 1. CHAPTERS 2-6		Lab 3. Measuring Heats of Reactions
6 2/15-2/21	GASES	CH 7	Lab 7. Using the Ideal Gas Law
7 2/22-2/28	SOLUTIONS	CH 9	
8 3/1-3/7	ACIDS AND BASES	CH 10	Lab 8. Titrations and Equivalence Points
9 3/8-3/14	EXAM 2. CHAPTERS 7-9		
10 3/15-3/21	INTRODUCTION TO ORGANIC CHEMISTRY-HYDROCARBONS	CH 11	Lab 10. Organic Compounds, Part 1
11 3/22-3/28	FUNCTIONAL GROUPS IN ORGANIC COMPOUNDS	CH 12 & 14	Lab 4. Separation by Chromatography
12 3/29-4/4	CARBOHYDRATES LIPIDS	CH 13 & 15	Lab 10. Organic Compounds, Part 2
13 4/5-4/11	EXAM 3. CHAPTERS 10, 11, 12, 14		
14 4/12-4/18	PROTEINS	CH 16	Lab Practical Quiz
15 4/19-4/25	FINAL EXAM, CHAPTERS 1-16		

This schedule is subject to change. Changes, if any, will be posted on Blackboard.
Be sure to check Blackboard and your Goodwin email regularly!

Class Policies

Class Meetings: While this course is asynchronous, it is expected that students will log in regularly and follow the class schedule. Please refer to the course outline for schedule of "meeting" dates and holidays. Material for the week will be posted each Monday (12:00 AM). All assigned work is expected to be completed by the end of the day on Sunday (11:59 PM) unless otherwise noted. If you cannot complete an assignment during the designated time, you must contact the instructor ***before*** the due date.

Blackboard: Blackboard contains class materials such as PowerPoints, Lecture Videos, and links for submitting assignments. Be sure to ***check Blackboard often*** to stay up to date on announcements, new course materials, and other important information. ***All assignments must be submitted on Blackboard.*** Work will not be accepted via email.
*BB issues contact bbsupport@goodwin.edu or call 860-913-2152

Late Assignments: Per department policy, all work is expected to be handed in on time. Any work submitted to the instructor after the due date will result in a grade deduction (increasing with time overdue) for that particular assignment. Make-up exams are only permitted when there are documented extenuating circumstances (i.e., medical and family emergencies), and the instructor has been notified 24 hours before or after the deadline. In circumstances in which the instructor permits a make-up exam, the format of the exam is at the discretion of the instructor.

Course Decorum: We will create a positive environment in the virtual classroom. There is an expectation of respect and professionalism (i.e., demonstrate respect for instructors, peers, and self, participate in classroom activities, and follow course and college policies).

Communication and E-mail: Students are expected to communicate in a professional manner (i.e., verbal, written, and electronic). Course updates will be sent as announcements through Blackboard so please ***check your Goodwin e-mail account regularly***.

APA Style: This course follows APA style format for all written assignments. All written assignments must be produced using software that is compatible with Blackboard. Assessment of written assignments will include use of APA format, writing, grammar, quotations, and references. APA Style Central is also available at http://apastylecentral.apa.org/, the course Blackboard shell, and through the Hoffman Family Library.

The following are basic expectations for all written work:

1. One-inch margin for all sides of the page (e.g., top, bottom, left, and right side of the page).
2. The font is 12 point.
3. The paper is double spaced.
4. The first page of the paper includes:
   - ✓ Your full name
   - ✓ The date of submission

Goodwin University Policies and Services

This course adheres to all policies outlined in the Goodwin university catalog.

General academic policies of Goodwin College may be found on the college web site at and in the college catalog at http://www.goodwin.edu/academics/catalogs.asp.

Student services information may be found on the Goodwin College website at http://www.goodwin.edu/student-services/ and http://www.goodwin.edu/library/.