

**SEWARD COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS**

I. TITLE OF COURSE: CH1105- Chemistry in Society

**II. COURSE DESCRIPTION: 5 credit hours
3 credit hours of lecture and 2 credit hours of lab per week.**

This is a study of basic chemistry principles as they are applied to everyday life. Topics include: papermaking, pigments, dyes, photography, metalworking, preservation, foods, cooking, medicine, forensics, and agriculture among others. This course is designed for liberal arts and elementary science education majors and meets the laboratory science requirement for degree. Science majors and pre-professionals should take College Chemistry I instead.

For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

Pre-requisite: Skill level of English Composition I or higher.

III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:

The Science Program at Seward County Community College provides opportunities to improve and enhance each student's understanding and comprehension of the natural world through a variety of courses and experience to develop a scientifically literate citizen.

IV. TEXTBOOK AND MATERIALS:

None

V. SCCC OUTCOMES

Students who successfully complete this course will demonstrate the ability to do the following SCCC Outcomes.

- 1: Read with comprehension, be critical of what they read, and apply knowledge gained to real life
- 2: Communicate ideas clearly and proficiently in writing, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.
- 3: Communicate their ideas clearly and proficiently in speaking, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.
- 5: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information
- 7: Understand each other, moving beyond simple acceptance to embracing and celebrating the rich dimensions of diversity by working as a team to learn, engaging with community, exhibiting cultural awareness, and creating equity.
- 8: Show the ability to contribute to political, civic, and community responsibilities as an informed member of society
- 9: Exhibit workplace skills that include respect for others, teamwork competence, attendance/punctuality, decision making, conflict resolution, truthfulness/honesty, positive attitude, judgment, and responsibility

VI. COURSE OUTCOMES:

1. Effectively use the language of Science in a "real life" context through oral communication
2. Effectively use the language of science in a "real life" context through written

communication

3. Understand and apply the scientific method.
4. Recognize the importance and value of chemistry in daily life.
5. Communicate in a literate manner in elementary scientific discussions.
6. Describe nature in a general scientific way.
7. Better understand their role in society and the influence of chemistry on society.
8. Read articles from periodicals and demonstrate understanding of a chosen topic.
9. Use the concepts of chemistry within various forms of art media.
10. Communicate the use of chemistry for authentication and conservation.
11. Investigate the chemistry of foods and apply chemical principles to the processes of fermentation, baking, braising, aging and others.
12. Use chemistry concepts to evaluate forensic data.
13. By the end of their program of study, students will demonstrate critical thinking skills by communicating the short and long term outcomes related to solutions to real world problems that use potentially controversial science-based information.

VII. COURSE OUTLINE:

1. Electromagnetic spectrum
2. Light versus pigment colors
3. Forensics use
4. Conservation use
5. Atomic structure
6. Ions
7. Chemical formulas
8. Basic chemical reactions
9. Chemical nature
10. Density gradients
11. Colloids
12. Glass
13. Solubility
14. Freezing point depressions/boiling point elevations
15. Reactivity series
16. Alloys
17. Electroplating
18. Poisoning (forensics applications)
19. Patinas
20. pH
21. buffers
22. strong versus weak
23. flavoring
24. Types of
25. Carbon based compounds
26. Bonding
27. Classifications
28. Natural-Cellulose, Starch, Protein
29. Synthetic- Nylon, polyester, Teflon, acrylic
30. Paper
31. Plant dyes
32. Animal dyes
33. Synthetic dyes
34. Dye/fiber compatibility
35. Binders
36. Mordants
37. Cyanotype
38. Pinhole
39. Aspirin synthesis
40. Caffeine concentrations

41. Medical elixirs
42. Forensics
43. Heat capacity
44. Calorimetry
45. Phase changes
46. Heat exchange methods

VIII. INSTRUCTIONAL METHODS:

1. Lecture
2. Discussion
3. Laboratory experiments and exercises
4. Problem solving assignments
5. Videos
6. Literature Research
7. Demonstrations related to concepts
8. Computer Programs
9. Internet

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

1. Chemicals
2. Laboratory equipment
3. Videos
4. Available instrumentation
5. Internet

X. METHODS OF ASSESSMENT:

1. Exams will be given to assess conceptual understanding and critical thinking skills.
2. Students will be assessed on written communication, cultural diversity and civic responsibility via essays relating the chemical concepts to societal issues.
3. Students will be assessed on oral communication, critical thinking, cultural diversity and civic responsibility via discussion topics and case studies related to chemical concepts.
4. Students will be assessed on conceptual understanding, critical thinking and written communication skills via product production and laboratory reports.
5. Students will be assessed on their attendance at each class period, active participation in discussion and completion of projects.
6. Students will be assessed on reading skills via literature research.

XI. ADA STATEMENT:

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobbie Academic building, room 149 A.