1. **COURSE TITLE\*:** Introduction to Chemistry
2. **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*:** CHEM 1120
3. **PREREQUISITE(S)\*:** One of the following: **COREQUISITE(S)\*:** N/A

* 2 years college preparatory math with a grade of C or higher
* Appropriate score on college placement exam
* MATH 101, 106, 1106

1. **COURSE TIME/LOCATION/MODALITY: (*Course Syllabus – Individual Instructor Specific*)**
2. **CREDIT HOURS\*:** 5 **LECTURE HOURS\*:** 5

**LABORATORY HOURS\*:** (Lab component) **OBSERVATION HOURS\*:** 0

1. **FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***
2. **COURSE DESCRIPTION\*:**

A beginning chemistry course designed for students in the health science programs or those desiring to fulfil a non-science general education requirement. Topics covered include measurement, atomic theory, bonding and chemical formulas, chemical reactions, stoichiometry, kinetic molecular theory, gas laws, solutions, acid-base chemistry, reaction rates, and oxidation/reduction. Laboratory exercises are designed to complement the lecture.

1. **LEARNING OUTCOMES\*:**

Upon completion of this course the student should be able to:

1. Read, write and talk about chemistry using a basic chemistry vocabulary;
2. Express measurements and calculated values in the correct number of significant figures using scientific notation where appropriate;
3. Solve problems pertaining to:
   1. unit conversions,
   2. density,
   3. moles,
   4. reaction stoichiometry;
4. Define and recognize elements, compounds and mixtures;
5. Write electron configurations and demonstrate a fundamental understanding of atomic and molecular structure and the periodic table;
6. Demonstrate an understanding of ionic and covalent bonding and write Lewis structures for molecules and polyatomic ions;
7. Name and write chemical formulas for inorganic compounds;
8. Write and balance chemical equations;
9. Perform laboratory exercises following a written procedure;
10. Demonstrate a fundamental understanding of kinetic molecular theory and its application to the physical states of matter and to changes of state;
11. Use kinetic molecular theory to explain each of the gas laws;
12. Perform calculations pertaining to gas laws;
13. Perform calculations pertaining to solution concentrations;
14. Demonstrate an understanding of acid-base theory;
15. Demonstrate an understanding of and perform calculations pertaining to the pH scale;
16. Perform acid-base titrations and carry out the corresponding calculations;
17. Demonstrate a fundamental understanding of electron-transfer reactions;
18. Demonstrate an understanding of reaction rates and chemical equilibrium and the factors affecting each.
19. **ADOPTED TEXT(S)\*:**

**LECTURE:**

*Introductory Chemistry: A Foundation*, 9th Edition

Steven S. Zumdahl and Donald J. DeCoste

Cengage

ISBN: 9781337399425

CCP Instructors at Fairfield Local Schools may use:

*Chemistry*, Student Edition

Wilbraham, Staley, Matta, Waterman

Prentice Hall

ISBN: 0-13-251210-6

CCP Instructors at Unioto High School may use:

*Chemistry: Atoms First*, 2nd Edition

Flowers, Neth, Robinson, Theopold, Langley

OpenStax

ISBN: 1-947172-63-8

**LABORATORY:**

In-house book

1. **OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)\*\***

A calculator is required. Students are required to purchase laboratory goggles.

1. **GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 90 – 100

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: 0 – 59

1. **GRADING PROCEDURES OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific)***

|  |  |
| --- | --- |
| Category | % of Grade |
| Homework and Class Activities | 20 |
| Laboratory Activities | 20 |
| Quizzes | 10 |
| Unit Exams (4 Exams, 10% each) | 40 |
| Final Exam | 10 |
| Total | 100 |

1. **COURSE METHODOLOGY: *(Course Syllabus – Individual Instructor Specific)***

Chemistry is a laboratory science. As such, students will be performing laboratory experiments and other hands-on activities. While we can see some chemistry with the naked eye, the actual science happens at the molecular level. To help students gain a deeper understanding of the discipline, students will often be working with simulations that model how the atoms and molecules are acting. Students in this course will meet the learning objectives using a variety of techniques, including lectures, small group activities, out of class assignments, and laboratory exercises.

The assessments in this course serve many different purposes. Some assessments, such as homework assignments and quizzes, are designed to give students feedback on their progress towards mastering the course material. Summative assessments, such as unit exams, are designed to measure students’ mastery of the course material.

Success in chemistry, as in any other discipline, stems from practice and persistence. I strongly suggest doing practice problems and reviewing your notes and textbook on a daily basis. I am always willing to work with students during my office hours, so please come ask for help if you are struggling. Chemistry is about more than just memorizing a series of facts. I will expect you to understand concepts, analyze situations, apply information to new contexts, and more, on exams. Only reviewing the material the night before the exam will not help you be successful in this course.

**14. COURSE OUTLINE: *(Course Syllabus – Individual Instructor Specific)***

***(Insert sample course outline with learning objectives tied to assignments / topics.)***

This sample course outline is for courses using the Cengage textbook. Courses using a different textbook may have a different course outline.

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Sections Covered in Textbook | Exams and Labs | LOs |
| 1 | Introduction, Lab Safety, 1.1 – 1.5, 3.1 – 3.3 | Calibration Lab | 1, 2, 3, 9 |
| 2 | 2.1 – 2.8 | Measurement Lab | 4, 9 |
| 3 | 4.1 – 4.10 | Isotopes Lab | 5, 9 |
| 4 | 11.4, 11.7 – 11.11 | Unit 1 Exam | 5 |
| 5 | 5.1 – 5.5, 5.7, 6.1 – 6.3 | Types of Reactions Lab | 6, 7, 8, 9 |
| 6 | 7.6 – 7.7, 8.1 – 8.5 | Moles and Grams Lab | 3, 9, 17 |
| 7 | 9.1 – 9.3 | Stoichiometry Lab | 3, 9 |
| 8 | 9.4 – 9.6, 15.2 – 15.5 | Solutions Lab, Dilutions Lab | 9, 13 |
| 9 | 12.1 – 12.5 | Unit 2 Exam | 6 |
| 10 | 12.6 – 12.10, 14.4 | Lewis Structure Lab | 6, 9 |
| 11 | 10.1 – 10.3, 10.5 – 10.6 | Unit 3 Exam | 10 |
| 12 | 14.1 – 14.2, 13.1 – 13.4 | Energy Lab | 9, 11 |
| 13 | 13.5 – 13.9, 17.1 – 17.4 | Gas Laws Lab | 9, 12, 18 |
| 14 | 16.1, 16.3 – 16.5 | Unit 4 Exam | 14, 15 |
| 15 | Final Exam Review | Titration Lab | 9, 16 |
| 16 | Final Exam |  |  |

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

* You may not use programmable calculators or cell phones during exams.
* Academic Misconduct**:** Any student who commits any type of academic misconduct as stated in the current college catalogue will receive an "F" for the exam, quiz, or evaluated project.

**16. FERPA:\***

Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**17. DISABILITIES:\***

Students with disabilities may contact the Disability Services Office, Central Campus, at 800-628-7722 or 937-393-3431.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.