

Standard Institutionally Developed College: N/A

EDGE Compatible: No

Pre-requisites

Co-requisites

Course Description

Introduces chemical concept principles, laws, and techniques applicable to the medical laboratory. Topics include laboratory safety, fundamental principles of chemistry, weight and measures, solutions, and basic laws of chemistry.

Course Length

| | Minutes | Contact Unit |
|------------------------|---------|--------------|
| Lecture: | 1500 | |
| Lab 2: | 1100 | |
| Lab 3: | 0 | |
| Practicum/Internship: | 0 | |
| Clinical: | 0 | |
| Total: | 2600 | 2 |
| <hr/> | | |
| Semester Credit Hours: | | 2 |

Competencies

| Order | Description | Lecture | Lab2 | Lab3 | Practicum/Internship | Clinical | Total Minutes | Semester Credit Hrs |
|-------|--|-------------|-------------|----------|----------------------|----------|---------------|---------------------|
| 1 | Laboratory Safety | 160 | 0 | 0 | 0 | 0 | 160 | 0 |
| 2 | Fundamental Principles of Chemistry | 322 | 0 | 0 | 0 | 0 | 322 | 0 |
| 3 | Weight and Measures | 343 | 550 | 0 | 0 | 0 | 893 | 0 |
| 4 | Solutions | 342 | 550 | 0 | 0 | 0 | 892 | 0 |
| 5 | Basic Laws of Chemistry | 333 | 0 | 0 | 0 | 0 | 333 | 0 |
| 6 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Totals for Course ALHS 1015 - Basic Inorganic Chemistry (version 201003): | 1500 | 1100 | 0 | 0 | 0 | 2600 | 2 |

Learning Outcomes

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|-------------------|
| Laboratory Safety |
|-------------------|

| Order | Description | Learning Domain | Level of Learning |
|-------|--|-----------------|-------------------|
| 1 | The student will identify lab safety equipment, the types and uses of glassware, and chemical hazards. | Cognitive | Knowledge |
| 2 | The student will be able to list lab safety precautions. | Cognitive | Knowledge |

Fundamental Principles of Chemistry

| Order | Description | Learning Domain | Level of Learning |
|-------|---|-----------------|-------------------|
| 1 | The student will be able to compare and Contrast solids, liquids, and gases. | Cognitive | Evaluation |
| 2 | The student will be able to describe and discuss the laws of conservation of energy and mass. | Cognitive | Knowledge |
| 3 | The student will be able to interpret the periodic table of the elements. | Cognitive | Comprehension |
| 4 | The student will be able to draw a Bohr model of an atom and label its parts. | Cognitive | Application |
| 5 | The student will be able to discuss emission properties and uses of excited atoms. | Cognitive | Comprehension |

Weight and Measures

| Order | Description | Learning Domain | Level of Learning |
|-------|--|-----------------|-------------------|
| 1 | The student will be able to convert English, Metric, and S.I. units of measurement. | Cognitive | Comprehension |
| 2 | The student will be able to measure and convert readings between Fahrenheit, Celsius, and Kelvin scales. | Cognitive | Comprehension |
| 3 | The student will be able to compute density and specific gravity from appropriate mass and volume data. | Cognitive | Application |
| 4 | The student will be able to record measurements with the correct number of significant figures. | Cognitive | Knowledge |
| 5 | The student will apply and use significant figures conventions to calculated values. | Cognitive | Application |

Solutions

| Order | Description | Learning Domain | Level of Learning |
|-------|--|-----------------|-------------------|
| 1 | The student will be able to compute percent composition from chemical formulas. | Cognitive | Application |
| 2 | The student will determine molecular weight of a compound from its formula. | Cognitive | Application |
| 3 | The student will compute concentration (including use of percent--%--molarity and normality) or volume in dilution and titration problems. | Cognitive | Application |

Basic Laws of Chemistry

| Order | Description | Learning Domain | Level of Learning |
|-------|---|-----------------|-------------------|
| 1 | The student will differentiate between ionic and covalent bonds. | Cognitive | Analysis |
| 2 | The student will construct ionic compound formulas from ions. | Cognitive | Application |
| 3 | The student will be able to interpret and balance chemical equations. | Cognitive | Evaluation |

| Order | Description | Learning Domain | Level of Learning |
|-------|---|-----------------|-------------------|
| 4 | The student will be able to identify reactions as single displacement, double displacement, combination or decomposition reactions. | Cognitive | Knowledge |
| 5 | The student will be able to list factors which affect reactions. | Cognitive | Knowledge |
| 6 | The student will be able to discuss key points of kinetic molecular theory. | Cognitive | Comprehension |
| 7 | The student will be able to explain the measurement of barometric pressure. | Cognitive | Comprehension |
| 8 | The student will be able to use and calculate partial pressure of a gas in a mixture or total pressure of a mixture of gases. | Cognitive | Application |
| 9 | The student will be able to solve problems using the gas laws. | Cognitive | Application |
| 10 | The student will be able to list and write formulas for common acids, bases, and salts. | Cognitive | Knowledge |
| 11 | The student will be able to compute pH from [H ⁺] or [H ₃ O ⁺]. | Cognitive | Application |
| 12 | The student will be able to describe chemical reactions between acids and bases. | Cognitive | Knowledge |

No Learning Outcomes entered for this Course Competency.

References

| Order | Reference Type | Description |
|-------|----------------------------|---|
| 1 | Book with Author(s) Listed | Bettelheim, B.. (2006). Introduction to general, organic, and biochemistry. (8th). Belmont, CA: Brooks/Cole. |
| 2 | Book with Author(s) Listed | Baker, F. J. and Silverton, R.E.. (1998). Introduction to medical laboratory technology. (7th). Unknown: A. Hodder Arnold. |
| 3 | Book with Author(s) Listed | Bennington, J. L. . (1984). Saunders' dictionary and encyclopedia of laboratory medicine and technology. (1st). Philadelphia: Saunders. |
| 4 | Book with Author(s) Listed | Lide, David. (2007). CRC handbook of chemistry and physics. (88th). Boca Raton: CRC Press. |
| 5 | Book with Author(s) Listed | Block, T and McKelvy, G. (2005). Lab experiments for general chemistry. (5th). Belmont, CA: Brooks/Cole. |