CHEM 112L - GENERAL CHEMISTRY II LABORATORY

CREDITS AND CONTACT HOURS
  · 1-credit course with three hours of lab weekly

COURSE COORDINATOR
  · Dr. Clifford LeMaster

TEXTBOOK(S) USED
  · Chemistry 112L Laboratory Manual for the current semester (authored by the BSU Department of Chemistry & Biochemistry; published by BSU)

COURSE INFORMATION
  Catalog description: CHEM 112L GENERAL CHEMISTRY II LABORATORY (0-3-1)(Area III). Lab to accompany CHEM 112.
  Pre-requisite courses: COREQ: CHEM 112.
  Selected Elective

COURSE GOALS

Successful students will be expected to:

Critical Thinking/Problem Solving Skills
  · Interpret data with respect to answering a scientific question or demonstrating a scientific hypothesis.
  · Use critical thinking and problem solving skills to solve computational problems in chemistry.
  · Use experimental procedures in both quantitative and qualitative chemistry to determine the identity of unknown samples.
  · Understand and follow standard laboratory safety practices.

Communication Skills
  · Keep a well-written laboratory notebook that carefully and accurately details the steps taken, experimental data/observations, and results of an experiment.
  · Explain and discuss chemical concepts, experimental data/observations, results and conclusions both orally and in a standard report form.

Cultural Perspective
  · Be aware of contributions made by chemistry in the increasingly technology-oriented culture of today.

Breadth of Knowledge and Intellectual Perspective
  · Apply chemical principles learned in the lecture and laboratory to understand the chemical phenomena observed in the laboratory during experiments involving…
acid-base reactions; calorimetry; chemical equilibria; decomposition reactions
- gravimetric analysis; lipid/base reactions; precipitation reactions; spectroscopy
- Demonstrate skill (precision, accuracy, and safety) using a variety of instruments and lab techniques, including…
  - Bunsen burner or hot plate; electronic balance; pH measurement; spectrophotometer; gas chromatograph, and standard chemistry glassware
- Use qualitative and quantitative data analysis techniques, including…
  - analysis of data for trends; graphical analysis; percent yield/percent composition
  - qualitative analysis of various ions

**Student Outcomes Addressed:** None

**TOPICS COVERED**
- Laboratory Tour, Excel Tutorial
- Spectrophotometric Determination of Aspirin
- The Percentage Mass of Copper in a Penny
- Assessing the Influence of Intermolecular Forces
- Synthesis of Soap
- Spectrophotometric Determination of Multi-Component Systems
- Colligative Properties
- Kinetics of Dye Decomposition
- Chemical Equilibrium
- Phosphoric Acid Titration Curves
- Phosphate Buffers
- Thermodynamics of Borax Solubility
- Electrolysis of Water
- Factors Affecting Radiation Intensity
- Making a Simple Dye-sensitized Solar Cell

**CURRICULAR AREA**

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<tr>
<th>Area</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Math and Basic Sciences</td>
<td>1</td>
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<tr>
<td>General Education</td>
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<td>Other</td>
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