

COURSE DESCRIPTION

Dept., Number	Chem 115	Course Title	General Chemistry Laboratory I
Semester hours	1	Course Coordinators	Kerri Scott, Instructional Assistant Professor John Wiginton, Instructor (Lab Managers)

Current Catalog Description

Laboratory for Chem 105

Textbook

Kerri Scott and John F. Wiginton, *Chemistry 115 Lab Manual*, 3rd edition, Pearson Custom Publishing, 2006. ISBN: 0-536-2789-3.

References

Course Outcomes

After successful completion of this laboratory course, the students:

1. can make observations and carry out measurements in the laboratory and draw conclusions based on those observations and measurements;
2. possess problem-solving skills developed during their laboratory experiences;
3. know the basic laboratory techniques necessary for this and future chemistry laboratory courses;
4. have a concrete knowledge of the important concepts from Chem 105 resulting from their application in practical situations;
5. have an appreciation of chemistry as an experimental science.

Relationship between Course Outcomes and Program Outcomes

The ABET/CAC criteria for computer science require 30 credit hours of science and mathematics appropriate for the discipline. The BSCS program meets this criterion by requiring 14 hours of natural science courses intended for majors in those fields, including a two-course sequence with associated laboratories in one field, and 18 hours of mathematics beyond the precalculus level. Chemistry 105 and 106 and their associated laboratories, Chemistry 115 and 116, form one option for satisfying the laboratory science requirement. The course outcomes are related to the expectations for the role of natural science in the BSCS curriculum.

Prerequisites by Topic

Corequisite of Chem 105, the accompanying lecture course.

Major Topics Covered in the Course

Laboratory sessions are 3 hours per class.

1. Bunsen burner, glass working, densities (1 class)
2. Mass, volume, and density: From mass-volume data taken on a set of samples of an unidentified metal the density of the metal is determined graphically (1 class)
3. Separating a ternary mixture: Percent composition, and percent recovery (1 class)
4. Detecting kinds of chemical change: Combinations of liquids, solutions, and solids. Observations and determination of chemical changes (1 class)
5. Empirical formula of a compound: Formation of MgO and determination of its formula (1 class)
6. Synthesis of strontium iodate: Percent yield (1 class)
7. The visible atomic spectrum of hydrogen: A calibration curve for a spectroscope is prepared using a discharge tube. Calculation of λ and n_2 for each of the visible emission lines of hydrogen (1 class)
8. Periodic properties of the elements: The chemical and physical properties of representative elements, and oxides of certain elements are observed through simple reactions (2 classes)
9. Synthesis of aspirin and investigation of some of its chemical properties (2 classes)

Assessment Plan for the Course

The instructor assesses the student performance related to the course outcomes by evaluating pre-lab assignments, quizzes, laboratory reports, laboratory notebooks, and practical exams.

How Data in the Course are Used to Assess Program Outcomes (unless adequately covered already in the assessment discussion under Criterion 4)

The conduct of this course is not governed by the ABET program faculty. No data are collected that are used to assess program outcomes directly.

Estimate Curriculum Category Content (Semester hours)

Science 1 hour