MONTGOMERY COLLEGE

DEPARTMENT OF CHEMISTRY

Common Course Outline

CHEM109L – Chemistry and Society Laboratory

Course Description

Laboratory work deals with experiments that illustrate the significance of chemistry in our society and reinforces the principles discussed in CHEM 109. To satisfy the natural sciences lab distribution requirement, CHEM 109L must be taken either concurrently with CHEM 109 or within one calendar year after completing CHEM 109.

Prerequisites: *A grade of C or better in MATH 080, appropriate score on the mathematics placement test, or consent of department.* **PRE- or COREQUISITE(S):** *CHEM 109.*

Credits – 1 semester hour. *Three hours laboratory each week.*

General Education – Natural Science Distribution (NSLD)

CHEM109L fulfills the Montgomery College General Education Program Natural Sciences Laboratory Distribution (NSDL) requirement. The General Education Program is designed to build skills, knowledge, and attitude necessary for success in work and personal life. This course provides multiple opportunities to develop two or more of the following competencies: written and oral communication, scientific and quantitative reasoning, critical analysis and reasoning, technological competency, and information literacy.

Course scheduling

Sections scheduled at the Rockville and Takoma Park campuses every Fall and Spring.

Course Outcomes

Upon successful course completion, a student will be able to:

- Locate safety equipment in the laboratory.
- Work safely in the lab.
- Identify common laboratory equipment.
- Demonstrate proper waste disposal.
- Successfully use chemistry laboratory techniques such as weighing, filtration, collection of gases, and precipitation.
- Make observations and collect data

Laboratory Topics

Laboratory safety; measurements; density; physical and chemical properties and changes; actual yield, percent yield, titrations; acid/base determination; percent error, percent deviation; distillation; separation techniques; synthesis techniques.

Course Requirements

Grading procedures will be determined by the individual faculty instructor, but will include the following *minimum* criteria:

- Laboratory Safety assessment
- Pre-laboratory assignments
- Post-laboratory assignments/reports
- Comprehensive Laboratory final examination (~20% of overall lab grade)

Grading Policy

The following letter grade policy will be used to determine the final course grade:

A 100 - 90% **B** 89 - 80% **C** 79 - 70% **D** 69 - 60% **F** <60%

Required Materials

- Experimental procedures available through Blackboard course management system
- Laboratory Goggles
- Laboratory Notebook

Laboratory Experiments (Subject to Change)

1. Laboratory Safety
2. Measurement and Density
3. Physical and Chemical Properties
4. Paper Chromatography
5. Preparation and Properties of Oxygen
6. Sugar Content of Sodas and Juices
7. Red Cabbage as a Natural Acid/Base Indicator
8. Water Hardness
9. Synthesis of Biodiesel
10. Preparation and Properties of Soap
11. Field Trip* TBD
12. Forensic Identification of Illegal Narcotics

*Examples of previous field trip locations include Montgomery County Recycling Center, Montgomery County Water Treatment Facility, Montgomery College Science Center Building (certified Gold LEED building), Montgomery Country Resource Recovery Facility, local winery.

Attendance in laboratory is mandatory. Unexcused absence of three or more lab meetings will result in automatic failure.

Student Code of Conduct and Academic Honesty

Montgomery College Syllabus Information