



Course Syllabus

I. Basic Information

Chemistry 105L - Fundamentals of Chemistry 3 &4 Lab

Instructor: Giley Wright

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II. Scope of the Course

This lab is designed to reinforce the concepts learned in the Fundamentals of Chemistry I lecture. It will also teach laboratory skills, safety, and proper disposal of chemical wastes.

III. Objectives of the Course

The general objectives for this course are:

1. To reinforce the elementary chemical background learned in the lecture part of this course.
2. To enhance critical thinking and problem solving skills within the discipline of chemistry.
3. To develop both manipulative and analytical laboratory skills.
4. To learn how to properly dispose of chemical waste and to perform laboratory experiments safely.

IV. Text to be Used

Fundamentals of Chemistry 105 Laboratory Manual, by M. J. Newhouse, and S. A. Henrie. This laboratory manual will be available for sale at the first lab meeting.

Students are encouraged to purchase an inexpensive calculator and a Sharpie marker for use in the lab. Although safety goggles will be provided, students may bring their own or purchase them from the Student Affiliate Chapter of the American Chemical Society.

V. Assigned Reading

It is expected that the laboratory experiment will be read by the students prior to the lab and the pre-lab questions completed.

VI. Method of Evaluation

Each student's grade in the course will be determined by his / her performance on the laboratory reports, including the pre-lab questions. Each student may accumulate a total of 200 points. There will be a total of 13 laboratory report grades. Each report will be worth 15 points.

Make-up labs shall only be given in the case of documented illness, emergency, or officially excused absence. Prior arrangements to make-up a lab are to be made in the case of foreseen absences.

Laboratory reports are to be completed and handed in at the end of the lab. Reports that are handed in late and are unexcused will be docked 10% per school day (or portion thereof) for 3 school days, after which they will not be accepted. If not handed in to the instructor by the end of the 3 days, a grade of zero will be given.

VII. Cheating Policy

Usually students will perform experiments in pairs or in small teams. Only data may be shared between students. If two or more students submit essentially identical formal laboratory reports, only one lab grade will be determined and the grade will be equally divided among the students involved.

The penalty for cheating (giving or receiving aid on a test,) is an F in this course. The student will also be reported to the academic center as required by Union University's policy.

This syllabus is intended to help the student plan his work in this course and is no way considered to be a contract. It is subject to change at any time by the instructor should a change be in the best interest of the class.

Tentative Laboratory Schedule (Friday Labs Follow the date listed)

| <i>Date</i> | <i>Experiment</i> | <i>Page</i> |
|-------------|---|-------------|
| 8-27 | Library Orientation begins ½ hour later @ library | |
| 9-3 | Syllabus and Getting Acquainted Lab | 5 |
| 9-3 | Properties of Matter: Density | 21 |
| 9-10/ | Electron Configuration: Chemistry of Fireworks | 31 |
| 9-10 | The Electromagnetic Spectrum | 39 |
| 9-17 | Chemical Bonding | 51 |
| 9-24 | Periodic Table: Its Trends and Uses | 67 |
| 10-1 | Stoichiometry: The Synthesis of a Garden Lime | 77 |
| 10-8 | Chemical Reactions | 89 |
| 10/15-19 | Fall Break | |
| 10-22 | Ideal Gas Laws: Finding Percent H ₂ O ₂ with Carrot Juice | 101 |
| 10-29 | Separating and Purifying Caffeine from Caffeine Pills | 113 |
| 11-5 | Rates of Reactions | 125 |
| 11-12 | Properties of Acids and Bases | 139 |
| 11-19 | <i>Thanksgiving Break</i> | |
| 11-26 | Titration of Acidic Candy | 149 |
| 12-3 | Check-out | |

Note: Lab on Radiation will be done as a lecture demo