Syllabus: CHM 109 – Chemistry In the Home

Fall 2017

**Text:** None

**Prerequisites:** MTH 121 or MTH 121B or MTH 121H or MTH 122 or MTH 123 or MTH 123E or MTH 125 or MTH 127 or MTH 130 or MTH 130E or MTH 130H or MTH 131 or MTH 132 or MTH 140 or MTH 190 or MTH 203 or MTH 220 or MTH 225 or MTH 229 or MTH 229H

**Calculator:** basic scientific calculator capable of exponential notation and logarithms. (Cell phones can be used as calculators during class time, but NOT exams.)

**Instructor:** Robert Grady, B.S. in Chemistry

**Email:** grady3@marshall.edu

**Office hours:** I can be available before or after class upon request.

**Course Policies:** This course will be conducted adhering to university policy. Marshall University’s polices regarding academic honesty, excused absences, and disabled students may be found at http://www.marshall.edu/wpmu/academic-affairs/?page\_id=802. Attendance at exams is required. Make up exams will only be given for university excused absences as defined in the policy.

If an assignment falls on a day that is cancelled by the university (e.g. a snow day), it should be turned in to me on the next day of class or by email (if applicable). Please turn off cell phone ringers before class. Failure to do so may result in you being removed from the room, even during an assignment.

**Issues:** We will examine the nature of materials commonly found in the home and try to learn how to evaluate whether or not they are hazardous. We will examine several factors such as possible acute toxicity, long term exposure hazards, synergism with other materials, flammability and explosion hazards, and environmental impact from improper use and/or disposal. In all cases we will endeavor to learn how to distinguish levels of hazard associated with these materials. Also, we will investigate topics such as food chemistry, soaps and detergents, and energy use in the home.

**Objectives:** The primary objective of this course is to provide the student with an introduction to the basic concepts of chemical science as it applies to materials commonly found in the household. Within this framework, it is expected that the student will learn how to examine and process information, ask critical thinking questions and build problem-solving skills. It is hoped that at the end of this course a student would be able to read a newspaper or magazine article relating to chemistry and intelligently evaluate it.

**Determination of Course Grade:**

Quizzes: 10 points each

Lab Reports: 20 points each

Presentation: 50 points

Comprehensive Final Exam: 100 points

**Course Calendar**

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| Week/Date | Contents |
| 1 (8/21) | Introduction, Chemistry Basics, Safety |
| 2 (8/28) | Corrosion, Acid/Base Chemistry, and pH |
| 3 (9/4) | Labor Day - No Class |
| 4 (9/11) | Corrosion, Acid/Base Chemistry, and pH (2) |
| 5 (9/18) | Understanding Toxicity  |
| 6 (9/25) | Understanding Toxicity (2) |
| 7 (10/2) | Reactivity of Chemicals in the home |
| 8 (10/9) | Soaps and Detergents |
| 9 (10/16) | Environmental Chemistry in the Home |
| 10 (10/23) | Environmental Chemistry in the Home (2) |
| 11 (10/30) | Chemistry of Food |
| 12 (11/6) | Chemistry of Food (2) |
| 13 (11/13) | Energy in the Home |
| 14 (11/20) | Thanksgiving Break – No Class |
| 15 (11/27) | Energy in the Home (2) |
| 16 (12/4) | Dead Week - Review |
| 17 (12/11) | Final |