Fundamentals of Chemistry II Syllabus, CH 152
Master Syllabus
Department of Chemistry, Washburn University

Purpose: "A continuation of Chemistry 151. Includes a study of equilibrium, electrochemistry, thermodynamics, thermochemistry, and kinetics. Laboratory work deals with experimental studies on the theories of chemistry, qualitative analysis and independent laboratory projects. Three class periods, one hour of recitation, and one three hour laboratory period per week."

This course will satisfy the general education requirements in Natural Sciences and Mathematics distribution. The Washburn University Student Learning Outcome which will be assessed in this course is "Quantitative and Scientific Reasoning and Literacy" given the three following objectives.

Objective 1: Demonstrate a conceptual understanding of fundamental chemical concepts in the areas of equilibrium, electrochemistry, thermodynamics, thermochemistry, and kinetics. This objective will be assessed using 100% of the questions on the final exam which will be the American Chemical Society Exam for the Full Year of General Chemistry.

Beginning, 1: >0% - 60%; Developing, 2: >60%-70%; Target, 3: >70%-86%; Advanced, 4: >86%

Objective 2: Demonstrate and understanding of mathematical principles and numerical data as applied to fundamental chemical concepts. This objective will be assessed using a minimum of 50% of the questions on the final exam which will be the American Chemical Society Exam for the First Term of General Chemistry.

Beginning, 1: >0% - 60%; Developing, 2: >60%-70%; Target, 3: >70%-86%; Advanced, 4: >86%

Course Objective3: Demonstrate the collection and use of empirical data using the scientific method. This objective will be assessed using 100% of the final laboratory grade, which includes pre-lab assignments, quizzes, experimental data, and post-lab questions.

Beginning, 1: D; Developing, 2: C; Target, 3: B; Advanced, 4: A

The General education Student Learning Outcome will be evaluated using the Final exam which is a minimum of 25% of the final course grade and the Laboratory Mid-term and Qualitative Analysis Unknowns which are a minimum of 25% of the overall laboratory grade.

Prerequisite: CH 151

Textbook (as specified in the instructor syllabus):

- *OpenStax Chemistry*, 2nd Ed. available at https://openstax.org/details/books/chemistry-2e (required)
- *Aktiv Chemistry*, on-line homework (required)
- *Laboratory Manual* from D2L (required)
- Student Lab Notebook with permanent or spiral binding, 100 carbonless duplicate sets, Hayden McNeil Specialty Products (required)
- At least 2 Dry Erase Markers for Recitation (required)
- Scientific calculator equipped with a solver function (required)

Grading: The instructor for the course and lab will state a specific grading scheme in supplemental syllabi. The lecture and recitation grade will comprise 80% of the overall grade and the laboratory grade will comprise the remaining 20%. The laboratory instructor is responsible for the laboratory section instruction and assessment, and at the end of semester will communicate an overall lab grade for each student to the lecture instructor. As the lecture instructor is the overall instructor for the course, she/he will determine the final grade. As chemistry is an empirical science, a student's overall grade in the course will not be more than one letter grade higher than her/his laboratory grade.

Lecture Exams (typically four hourly exams and a final exam) contribute 65-80% of the points toward the final grade. Homework, recitation questions, quizzes, and special assignments contribute 0-15% of the points toward the final grade. Laboratory experiments, write-ups, questions and quizzes comprise the remaining 20%.

Student final grades typically average 2.5 on a scale of F = 0.0 to A = 4.0.

Attendance: Attendance is required for lecture, recitation and laboratory. If a university field trip or athletic event conflicts with a class time, it is the **student's responsibility** to make arrangements with the lecture or laboratory instructor to make up any missed material at the discretion of the lecture or laboratory instructor.

Laboratory participation is required for the successful completion of this course. If you are pregnant or become pregnant during this semester you should consult with your physician to decide if it is advisable for you to continue with this chemistry course. You may obtain a list of chemicals used during labs from your instructor.

Laboratory Safety: The following safety rules must be followed to ensure every student's safety. Special safety issues will be discussed for each experiment if necessary. Violation of any safety rules shall be dealt with (*e.g.* loss of points, removal from laboratory, etc.) at the discretion of the Instructor, Laboratory Supervisor, and/or Department Chair.

- Students must view the "Starting with Safety" video before working in the laboratory.
- Students must read, agree to, and sign the "Safety Regulations in the Laboratory" before working in the laboratory.
- In the unlikely event an accident occurs in the laboratory, the student(s) involved with the guidance of the laboratory instructor will submit a completed "Accident Report Form" to the Laboratory Supervisor.
- Students must wear safety goggles at all times in the lab.
- Students must wear shoes in the lab. Open-toed shoes, sandals, or shorts do not offer adequate protection against spilled chemicals or broken glass. Open-toed shoes or sandals are not allowed.
- Eating or drinking is not allowed in the lab.
- Chemicals should not be used for purposes other than those stated in the experiments.
- Wastes must be disposed of properly in accordance with instructions.

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