

Tarleton State University

August 2004

Master Course Syllabus

Department: Chemistry, Geosciences, and Environmental Science

Official Course Title: Qualitative Organic Analysis CHEM 4273

Master Syllabus Approved by Department on: ____/____/____
month date year

I. Course Description

The identification of the principal classes of organic compounds.

II. Prerequisites

CHEM 2024

III. Expanded Course Description

Chemistry 4273 is a course in the identification of organic compounds by both traditional laboratory tests and spectroscopic analysis. Students will learn to run their own spectroscopic examinations, including IR, NMR, and mass spectral analysis and all types of laboratory reactions, separations, and tests. The course includes a significant amount of structure elucidation problem solving.

IV. Intended Student Learning Outcomes

Knowledge Outcomes

- The student who successfully completes this course will be able to
- A. understand the characteristic reactions, nomenclature, and physical properties of organic chemistry
 - B. understand the relationship between structure and spectral properties

Skill Outcomes

- The student who successfully completes this course will be able to
- A. run chemical instrumentation including IR, NMR, and GC-MS
 - B. practice logical thinking and deductive reasoning
 - C. plan and successfully carry out a qualitative chemical analysis

- D. become proficient in structure elucidation using all types of data
- E. use the chemical literature.
- F. write up clear concise reports for results proving the chemical structures

Value Outcomes

The student who successfully completes this course will

- A. gain confidence in working independently in a laboratory
- B. learn to appreciate the logic and order as well as the chaos in scientific inquiry

V. Unless otherwise stipulated in this master syllabus by the department, the following items are subject to faculty discretion as described in each faculty member's individual course outline/syllabus.

a) Course Requirements

Students are expected to attend all classes and complete all work. While a great deal of latitude in when a student works in lab will be tolerated, students must complete all required laboratory work. Students with special requirements or circumstances should contact the instructor or the Director of Disability Services.

Grading will be based approximately 2/3 on the results of laboratory reports and quality of proof of structures and approximately 1/3 on tests over structure elucidation and spectral interpretation, and homework.

b) Required Textbook and Materials

Silverstein and Webster, Spectrometric Identification of Organic Compounds, 6th ed., Wiley 1997.

Department Head Signature / Date

_____ / /
Signature month date year