

112 Chemistry

Lynchburg College

CHEM 206

ENVIRONMENTAL CHEMISTRY (4) *Prerequisite:*

Satisfactory completion of CHEM 103 and 105L. Three hours lecture and three hours laboratory. This course can substitute for CHEM 104-106L for environmental science majors only. This course focuses on the application of fundamental chemical principles to environmental problems. Laboratory techniques and field collection methods used in modern environmental analysis are introduced to assess aspects of water quality, atmospheric chemical reactions, and soil chemistry.

CHEM 238

INTRODUCTION TO RESEARCH (1-3) *Prerequisite:*

Consent of supervising instructor. This course provides the beginning student the opportunity to conduct lab, field, or library research under the supervision of a faculty member. Credit is dependent upon the scope of the work.

CHEM 251-252

ORGANIC CHEMISTRY (3, 3) *Prerequisites: CHEM 104 and*

106; Corequisite: CHEM 253L-254L must accompany the lecture. Three hours lecture. The fundamentals of organic chemistry are presented with emphasis on the reaction mechanism and functional group reactivity. Biological examples are used to illustrate important concepts. In-class group problem solving is a key component of this course.

CHEM 253L-254L

ORGANIC CHEMISTRY LABORATORY (1, 1)

Prerequisites: CHEM 104 and 106; Corequisite: CHEM 251-252 must accompany the laboratory. Three hours laboratory. This course is an introduction to the laboratory techniques used to synthesize, purify, and analyze organic compounds. Spectroscopic and instrumental methods of analysis are emphasized. Multi-step synthesis is explored in the second semester.

CHEM 320

INTRODUCTORY BIOCHEMISTRY (4) *Prerequisites:*

CHEM 251-252 and 253L-254L. Three hours lecture and three hours laboratory. This course is a study of the structure and function of biological macromolecules and the relation of chemistry to metabolic processes. Biochemistry is especially recommended for biology majors and pre-health science students.

CHEM 352

ADVANCED ORGANIC CHEMISTRY (3) *Prerequisites:*

CHEM 252 and 254L or consent of instructor. Three hours lecture. This course explores advanced topics in organic chemical bonding and reactivity, including molecular orbital theory, stereochemistry, stereoelectronic effects, molecular rearrangements, structure-reactivity relationships, pericyclic reactions, additions, and condensations. These concepts are applied in the study of organic synthesis and determination of mechanisms. Modern spectroscopic methods, including mass spectrometry, infrared spectroscopy, and one- and two-dimensional nuclear magnetic resonance spectroscopy will be emphasized. Structure determination using a combination of methods will also be emphasized.

CHEM 359

ANALYTICAL CHEMISTRY I (4) *Prerequisites: CHEM 104*

and 106L. Three hours lecture and three hours laboratory. This course focuses on the theory and practice of modern analytical chemistry including volumetric and electrochemical methods, sample collection, preparation, and sample validation. Laboratory work is designed to complement this study.

CHEM 360

ANALYTICAL CHEMISTRY II (5) *Prerequisite: CHEM 359.*

Three hours lecture and six hours laboratory. This course examines theoretical and experimental aspects of instrumental analysis with an emphasis on modern chromatographic, spectroscopic, and electrochemical methods.

CHEM 397

INDEPENDENT STUDY IN CHEMISTRY (1-3)

Prerequisites: Approval of faculty sponsor and school dean; junior or senior standing. This course provides students the opportunity to pursue individual study of topics not covered in other available courses. The area for investigation is developed in consultation with a faculty sponsor and credit is dependent on the nature of the work. May be repeated for no more than six credits.

CHEM 398

SPECIAL TOPICS IN CHEMISTRY (1-3) [credit depends on

topic] *Prerequisites: A background of work in the discipline or prior consent of instructor.* This course will focus on an aspect of the discipline not otherwise covered by the regularly offered courses. The topic will vary according to professor and term; consequently, more than one may be taken by a student during

