

3280. CYBER BUSINESS LAW. (3-3-0). Legal aspects of owning and operating a business online as well as maintaining, securing and protecting private data on computer networks. Intellectual property rights, online jurisdictional issues, privacy and the First Amendment and domain name rights; legal aspects of E-commerce and cyber taxation. Prerequisite: Junior standing.

3610. INTRODUCTION TO OIL AND GAS INDUSTRY. (3-3-0). Modern civilization depends on petroleum products. However, the oil and gas industry operates in a unique business atmosphere. While all oil and gas investments carry significant risk, understanding where petroleum comes from, how it is refined, how it is transported, and knowledge of the industry operating environment lowers investor risk. This nontechnical course familiarizes the novice student with the nuts and bolts of the oil and gas industry. Prerequisite: Junior standing or instructor consent.

4000. READING AND DISCUSSION. (3-3-0). Problems and issues of contemporary significance for the business community.

Subtitles:

01-Accounting

02-Finance

03-Marketing

04-Management

05-Business

06-Computer Information Systems

4160. U.S. AND FOREIGN BUSINESS CENTERS. (1 to 6-0-0). Study tours of selected centers of business and economic activity in the U.S. and abroad. Prerequisite: Consent of instructor.

4190. SMALL BUSINESS ENTREPRENEURSHIP. (3-3-0). Analysis of small business operations. Integration of knowledge and application of theories across functional areas. Prerequisite: Senior standing and consent of instructor.

4800. MICROCOMPUTER APPLICATIONS II. (3-3-0). Advanced microcomputer application software exercises and problems. Current operating systems, networking, and telecommunication techniques. Prerequisite: BUAD 1800 or consent of instructor.

4900. SENIOR SEMINAR. (2-2-0). Topics on preparation and transition to the professional world. Includes development of resumes, resume tapes, and portfolios; interviewing skills; and business etiquette. Prerequisite: graduating senior status.

For Graduates Only

5800. COMPUTER APPLICATIONS. (3-3-0). Computer applications software exercises and problems designed to enhance communications skills using modern technologies.

BUSINESS EDUCATION (BUED)

For Undergraduates Only

4200. CAREER AND VOCATIONAL EDUCATION IN AMERICAN SCHOOLS. (3-3-0). Principles and philosophies of cooperative vocational education. Relationship of vocational education to general education. Development of cooperative training under the George-Barden, George-Dean Acts, the Vocational Act of 1963, as amended; current career education legislation. Prerequisite: Education 2020, Educational Psychology 3000, and consent of instructor.

4220. COOPERATIVE EDUCATION PROGRAM. (3-3-0). Developing and coordinating a cooperative education program in the secondary school. Prerequisite: Education 2020, Educational Psychology 3000, or consent of instructor.

4230. HUMAN RELATIONS IN BUSINESS EDUCATION. (3-3-0). Human relations and its importance in the educational, occupational, economic, and social activities of an individual involved in the instruction and/or supervision of other persons in office occupations or distributive education. (Same as Distributive Education 4230).

For Graduates Only

5100. BASIC PRINCIPLES IN BUSINESS EDUCATION. (3-3-0). Problems facing business education; principles underlying a sound program; development and evaluation of aims of business education in terms of the contribution made to the general program of secondary education.

5200. CAREER AND VOCATIONAL EDUCATION IN AMERICAN SCHOOLS. (3-3-0). Principles and philosophies of cooperative vocational education. Relationships of vocational education to general education. Development of cooperative training under the George Barden, George Dean Acts, the Vocational Act of 1963, as amended; current career education legislation.

5220. COOPERATIVE EDUCATION PROGRAMS. (3-3-0). Developing and coordinating a cooperative education program in the secondary school.

5950. RESEARCH PROBLEMS IN DISTRIBUTIVE AND BUSINESS EDUCATION. (1 to 6-0-0).

6210. IMPROVEMENT OF INSTRUCTION IN SECRETARIAL STUDIES. (3-3-0). New classroom procedures and teaching techniques developed from recent research and experimentation; stages of learning and the type of instruction and instructional materials used in each; problems of individual teachers and individual learners examined and possible solutions worked out.

6220. IMPROVEMENT OF INSTRUCTION IN BOOK-KEEPING. (3-3-0). Problems and techniques related to the skills, objectives, and content of bookkeeping; source of materials and suggested techniques for instruction and testing.

6230. IMPROVEMENT OF INSTRUCTION IN GENERAL BUSINESS. (3-3-0). Problems, skills, objectives, and content of general business; techniques of presentation, testing, and source material.

CHEMISTRY (CHEM)

For Undergraduates Only

1010. CHEMISTRY ORIENTATION. (1-1-0). Specific information concerning scholastic resources, study skills, academic requirements, academic and intellectual content, job opportunities, academic advising, and scholarships.

1030. GENERAL CHEMISTRY. (3-3-0). Atomic and molecular structure; chemical bonding; properties of gases, liquids and solids; chemistry of some non-metals. For students who plan to take 1040 and 2000- or 3000-level chemistry courses. Prerequisite: Placement in Mathematics 1020. (May not receive credit for both Chemistry 1030 and Science 1010).

1031. GENERAL CHEMISTRY LABORATORY. (1-0-3). Basic chemistry experiments. Prerequisites: Credit in 1030 or equivalent.

1040. GENERAL CHEMISTRY. (3-3-0). Continuation of 1030. Chemical equilibrium, chemistry of metals and some of their compounds; nuclear chemistry. Prerequisite: Credit for 1030 and registration in or credit for 1031. (May not receive credit for both Chemistry 1040 and Science 2010).

1041. GENERAL CHEMISTRY LABORATORY. (1-0-3). Identification of common inorganic ions; quantitative inorganic analysis; experiments of chemical equilibria. Prerequisites: Credit for 1030-1031 and credit for or registration in 1040.

1070. FUNDAMENTALS OF CHEMISTRY FOR NURSING AND ALLIED HEALTH MAJORS. (3-3-0). This course taken by Nursing and Allied Health majors, is a study of atomic and molecular structure, intermolecular bonding and interactions, properties of the various states of matter, chemical kinetics, equilibrium, chemical thermodynamics, and biological macromolecules. Focus will also be placed on basic organic chemistry and fundamental biochemistry with an emphasis on health-related applications. Prerequisite: Placement in Mathematics 1020. (May not receive credit for both Chemistry 1070 and Science 1010).

- 2110. QUANTITATIVE ANALYSIS.** (3-3-0). Chemical equilibrium; pH and indicators; solutions; oxidation-reduction and the calculations of analytical chemistry; reliability of measurements; theory and applications of gravimetric, volumetric, and other representative analytical procedures. Prerequisite: Registration in or credit for 2111; 1040, 1031, 1041.
- 2111. QUANTITATIVE ANALYSIS LABORATORY.** (1-0-3). General experiments. Prerequisite: Registration in or credit for 2110.
- 2120. INTRODUCTION TO INSTRUMENTAL ANALYSIS.** (3-3-0). Prerequisite: Registration in or credit for 2121; 2110-2111.
- 2121. INTRODUCTION TO INSTRUMENTAL LABORATORY.** (1-0-3). pH, polarographic, spectroscopic and emission spectroscopic measurements and separation techniques such as gas, thin layer and ion exchange chromatography, liquid-liquid extraction, and electro-deposition for chemical analysis. Prerequisite: Registration in or credit for 2120.
- 2140. DESCRIPTIVE INORGANIC CHEMISTRY.** (3-3-0). An introduction to basic inorganic chemistry including a systematic study of the periodic table with emphasis on the structures, properties and reactions of inorganic compounds. Prerequisite: 1040, 1031, 1041; registration in or credit for 2141.
- 2141. INORGANIC CHEMISTRY LABORATORY.** (1-0-3). A laboratory course involving the preparation and characterization of compounds of common elements, including salts, coordination complexes and covalent compounds. Prerequisite: Registration in or credit for 2140.
- 2200. PRACTICUM FOR CHEMISTRY TEACHING.** (1 to 3-0-0). Supervised experiences in teaching in the chemistry laboratory. Required for secondary education majors with chemistry as a primary or secondary teaching area and recommended for chemistry majors contemplating a teaching career. One hour credit for each laboratory teaching experience. Field experiences required. May be repeated for up to a total of 3 credit hours. Prerequisite: Consent of department head.
- 3010. ORGANIC CHEMISTRY.** (3-3-0). First half of a one-year course. Preparation, properties, uses, and mode of reaction of representative aliphatic and aromatic compounds; halides, hydrocarbons, stereochemistry and spectroscopy. Prerequisite: Registration in or credit for 3011; 1040, 1031, 1041.
- 3011. ORGANIC CHEMISTRY LABORATORY.** (2-0-4). Basic experiments. Prerequisite: Registration in or credit for 3010.
- 3020. ORGANIC CHEMISTRY.** (3-3-0). Second half of a one-year course. Preparation, properties, uses, and mode of reaction of aliphatic and aromatic compounds; emphasis on alcohols, aldehydes, ether, ketones, amines, acids and their derivatives. Prerequisite: Registration in or credit for 3021; 3010-3011.
- 3021. ORGANIC CHEMISTRY LABORATORY.** (2-0-4). Continuation of 3011. Preparation and qualitative analysis of organic compounds. Prerequisite: Registration in or credit for 3020.
- 3210. PHYSICAL CHEMISTRY.** (3-3-0). Principles and applications of chemical thermodynamics. Prerequisite: A year of general physics and calculus.
- 3211. PHYSICAL CHEMISTRY LABORATORY.** (1-0-3). General experiments. Prerequisite: Registration in or credit for 3210.
- 3220. PHYSICAL CHEMISTRY.** (3-3-0). Continuation of 3210. Chemical kinetics; quantum chemistry with applications to molecular structure and spectroscopy. Prerequisite: 3210 or Physics 3710.
- 3221. PHYSICAL CHEMISTRY LABORATORY.** (1-0-3). Continuation of 3211. Prerequisite: Registration in or credit for 3220.
- 3900. SPECIAL TOPICS IN CHEMISTRY.** (1 to 3-1 to 3-0). In-depth study of various upper-level elective topics in chemistry; in particular, those not included explicitly among the catalog listings. Prerequisite: 1030, 1040, 1031, 1041, 2110-2111, 3010-3011 or consent of instructor.
- 4040. GENERAL BIOCHEMISTRY.** (3-3-0). Chemistry of constituents of living matter; carbohydrates, lipids, proteins, nucleic acids, inorganic and other organic materials; chemistry of enzymes as highly specific protein catalysts. Prerequisites: registration in or credit for 4041; Chemistry 3020-3021, 2110-2111.
- 4041. GENERAL BIOCHEMISTRY LABORATORY.** (1-0-3). General experiments in biochemistry; modern biochemical-type instrumentation. Prerequisite: Registration in or credit for 4040.
- 4050. GENERAL BIOCHEMISTRY.** (3-3-0). Continuation of 4040. Chemical transformation in living matter; metabolism of carbohydrates, lipids, proteins, nucleic acids, and other biochemical matters. Prerequisite: 4040-4041.
- 4140. INORGANIC CHEMISTRY.** (3-3-0). Theories of inorganic chemistry, including atomic, molecular and crystal structure, thermochemical and electrochemical properties, acidity, solvent systems and coordinated compounds. Prerequisite: 3220-3221.
- 4160. ADVANCED INSTRUMENTAL ANALYSIS.** (2-2-0). Procedures for inorganic and organic product analysis; employment of representative group of instrumental methods. Prerequisite: Registration in or credit for 4161; 3220-3221.
- 4161. ADVANCED INSTRUMENTAL LABORATORY.** (2-0-6). Prerequisite: Registration in or credit for 4160.
- 4900. UNDERGRADUATE SEMINAR.** (1-1-0). Literature search and critical analysis of current chemistry research. Students will present a seminar on a chemistry topic approved by instructor. No more than two hours may be applied toward a B.S. degree.
- 4950. RESEARCH PROBLEMS IN CHEMISTRY.** (1 to 4-0-0). Individual laboratory investigation, the results presented both in a formal report and orally, either at a departmental seminar or professional meeting. Prerequisite: Consent of department head.
- 4980. DIRECTED INDIVIDUAL RESEARCH FOR UNDERGRADUATE STUDENTS.** (3-0-9). Chemical research methods for undergraduate students. Investigation of a problem in experimental or theoretical chemistry under supervision of a faculty member. The student will present an oral report to a seminar and a written report describing the results of the research. Should be taken the first semester of the senior year. Prerequisite: Consent of the department head.

¹ Credit may not be obtained for both 1030 and either Science 1010 or Chemistry 1070.

For Graduates Only

- 5000. GENERAL CHEMICAL PRINCIPLES FOR TEACHERS.** (3 to 8-0-0). Principles of chemistry, including states and chemical transformation of matter with emphasis on recent developments. For teachers who need refresher courses in chemistry. Prerequisite: Consent of department head.
- 5010. CHEMISTRY FOR SECONDARY TEACHERS.** (3-3-0). Principles of chemistry with application to secondary school chemistry. Current trends and literature in chemistry. Prerequisite: 12 hours of chemistry.
- 5020. EXPERIMENTAL CHEMISTRY FOR TEACHERS.** (3-3-0). Development of laboratory techniques necessary for a modern secondary laboratory. Laboratory experiments and demonstrations.
- 5090. PHYSICAL SCIENCE FOR ELEMENTARY TEACHERS.** (3 to 4-0-0). Teaching basic principles of physical science at the elementary level by the inquiry method.
- 5950. RESEARCH PROBLEMS IN CHEMISTRY.** (1 to 6-0-0).

¹ Credit may not be obtained in both Chemistry 5090 and Physics 5090.