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Randy F. Johnston(1994). University Professor of

A. CHE 111, 112, 211, 221, 314, 315, 324, 326, 317, 318, 327, 319, 335—38 hours
B. PHY 231, 232, 311, 313, 314; 325 or 420; 430—26 hours
C. PHY or CHE 424; PHY or CHE 498; Upper level PHY or CHE—4 hours
D. MAT 211, 212, 213, 314—15 hours
E. ENG 111, 112; 201 or 202—9 hours
F. ART 210; CHR 111, 112; BIO 112; CLU 195; HIS 101; and 9 hours of social science—27 hours
G. No minor is required.

V. Teacher Licensure with Endorsement in Chemistry 6–12
A. Complete the requirements for the Chemistry major as shown above including CHE 405.
B. Additional Requirements: CSC 105, PHY 112 (in B.S. core), PHY 231 and 232, MAT 212 (in B.S. Core), and membership in SMACS.
C. Professional Education:
1 Prior to Internship – EDU 150, EDU 305, PSY 213, PSY 318, PSY/SE 230.
2. Fall of Internship Year – EDU 306, 340, 418, 440
3. Spring of Internship Year – EDU 441 and 451
4. CSC 105 is required in the BA core
D. Completion of applicable portions of the Praxis II.
E. For additional information, see the Assistant Dean for Teacher Education and Accreditation.

VI. Minor in Chemistry
A. CHE 111, 112, 211, 221, 314, 315, 324 326—23 hours
B. Elective, one of: 317, 319, 335, 405, 430—3 or 4 hours

M C e D , eS e H

In addition to the requirements listed in I., students must complete
A. Honors contracts in two of the following courses: CHE 211, 315, 318, 319, or 335
B. An honors contract in one of the following courses: CHE 405, 430, or 435
C. An honors contract in CHE 424/425 and 498

M B e D , e S e H

In addition to the requirements listed in II., students must complete
A. Honors contracts in two of the following courses: CHE 211, 315, 318, 319, or 335.
B. An honors contract in CHE 329.
C. An honors contract in CHE 424/425 and 498.

Admission Requirements for Majors with Discipline-Specific Honors
- Completion of at least 15 hours at Union University or in transfer

Progression in Majors with Discipline-Specific Honors

To remain in the program a student must earn at least a B in each honors contract course in the major. A student who earns a B in two honors contract courses in the major may continue in the program only with permission of the department committee. A committee of three or fou Speci 6,1u EMC /S6Span 1T- 10]TJ ET EMC /Span <</MCID 68(lis

C eO e C e (CHE)

( ) Hours Credit; F–Fall, W–Winter; S–Spring; Su–Summer

102. Chemistry of Common Consumer Products (4) S, Su
A study of several of the many chemical compositions found in the everyday lives of American consumers. Students will learn how highly specialized mixtures of diverse substances enable the safety, comfort and convenience of early 21st century life. From this students will be equipped to make better product purchase and use decisions throughout their lives. Three 1-hour lectures and one 3-hour laboratory period/week. This course is for adult students only.

105. Fundamentals of Chemistry I (4) F, S, Su
An introductory general chemistry course that includes study of both physical and chemical properties, structure and reaction of matter. Not applicable to pre-health

315. Organic Chemistry II (3) S
Prerequisite: CHE 314; Corequisite: CHE 326.
An in-depth examination of the common oxygen and nitrogen functional groups with respect to structure and chemistry. Continued application of basic theory is included. Heterocyclic and biomolecules will also be examined. Three lectures/week.

317. Physical Chemistry I (3) F
Prerequisites: CHE 211, MAT 212, and PHY 232.
Application of physical techniques to chemical systems with emphasis on thermodynamics. The laws of thermodynamics will be derived and applied to phase and chemical equilibria, electrochemical cells, and surface phenomena.

318. Physical Chemistry II (3) S
Prerequisite: CHE 317.
A continuation of CHE 317 with emphasis on dynamics and quantum chemistry: kinetics, mechanisms, and photochemistry; atomic and molecular electronic structure and application to spectroscopy.

319. Biochemistry (4) F
Prerequisite: CHE 315, CHE 326, and BIO 112.
Introduction to the organic chemistry of living systems. Topics include the structure and function of proteins, enzymic control of chemical reactions, catabolism, anabolism, bioenergetics, biosynthesis, and molecular biology. Three lectures and one 3-hour lab/week.

324. Organic Chemistry Laboratory (2) F
Corequisite: CHE 314.
Introduction to the basic techniques for the physical characterization and isolation of organic compounds. Use of spectrometric methods as applied to the determination of structure is included, as are some synthetic methods. Two 3-hour labs/week.

326. Organic/Inorganic Synthesis Laboratory (2) S
Prerequisite: CHE 314 and CHE 324;
Corequisite: CHE 315.
Application of laboratory techniques in synthesis and characterization of organic and inorganic compounds. Two 3-hour labs/week.

327. Physical Chemistry Laboratory (2) S
Corequisite: CHE 318.
The application of physical methods in the study of chemical compounds. Two 3-hour labs/week.

329. Biochemistry II (4) S
Prerequisite: CHE 319.
A continuation of 319 with emphasis on bioenergetics and metabolism. Topics include the function and molecular control of catabolic pathways for proteins, lipids, and carbohydrates as well as anabolic pathways for biological synthesis of these molecules. Three lectures and one 3-hour lab/week.

335. Intermediate Inorganic Chemistry (3) S
Pre– or Corequisite: CHE 315.
Introduction to inorganic compounds with an emphasis on coordination, bioinorganic, nuclear, and organometallic chemistry. The relationships between structure, physical properties, and reactivity will be examined in detail.

405. Environmental Chemistry (4) W—Odd Years
Prerequisite: CHE 211 and 315.
Study of rapid changes in earth's atmosphere, water, and soil caused by the activities of humankind with attention to the ozone layer, air quality, and water cycles. The vectors, fate, and treatment/removal strategies for organic and heavy metal pollutants will be discussed. Three lectures and one 3-hour lab/week.

424-5. Introduction to Research (1-3) 424–F; 425–S
Prerequisite: 20 hours of chemistry and junior/senior standing.
The student's knowledge is integrated by application of a simple piece of original work. Each course will be three hours per week per credit hour.

430. Advanced Inorganic Chemistry (4) F—Even Years
Prerequisite: CHE 211. Pre-or Corequisite: CHE 318 and 335.
A theoretical treatment of fundamental inorganic topics such as chemical bonding, periodic relationships, stereochemistry of inorganic complexes, acids and bases, and physical properties of inorganic compounds. Three lectures and one 3-hour lab/week.

435. Advanced Organic Chemistry (4) F—Odd Years
Prerequisite: CHE 315.
Extensive treatment of topics including reaction mechanisms, stereochemistry, heterocyclic chemistry, and molecular rearrangements. Three lectures and one 3-hour lab/week.

498. Seminar (1-3) S
Prerequisite: 20 hours of chemistry and junior/senior standing.
Skills in scientific and technical presentations, written and oral, will be polished. To be used at the discretion of the department for majors and minors only.

424pp1 Tf immunhHematology(52)

411. Clinical Chemistry (6)
Chemical analysis of various body fluids and the study of their relationship to disease states.

412. Instrumentation (1)
The principles, use, and care of instruments found in up-to-date laboratories.

421. Hematology and Coagulation (7)
Application of theory to technical performance in hematological procedures which aid in classification of anemias, leukemias, and other blood cell abnormalities.

422. Advanced Microbiology (7)
A lecture and lab course covering the role of microorganisms as they cause disease in man. Methods employed in the identification of bacteria, fungi, viruses, and rickettsiae.

423. Serology (2)
A lecture and lab course in immunology, demonstrating reactions between antigens and antibodies are considered. Use of these reactions as a serodiagnostic tool is presented.

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