Sally A. Henrie (1998). Professor of Chemistry. B.S., University of Arizona; Ph.D., South Dakota State University.

Randy F. Johnston (1994). University Professor of Chemistry. B.S., University of Missouri, St. Louis; Ph.D., Texas Tech University.

Michael R. Salazar (2001). Professor of Chemistry. B. 0 10 Bsa e.5 (t)5935 (y) [illegible] Tc 0.269 Tw 10 0 0 e(o)1

Anna Livingston (2019). Academic Secretary–Biology and Chemistry. B.S.W., University of Mississippi

Giley Wright (2004). Stockroom Coordinator. B.S., Union University.

The chemistry program at Union University seeks to serve effectively all students, recognizing different needs, interests, and career goals. The faculty seeks to help students understand the physical world, the methods by which it may be studied, and its relationship to other aspects of the human experience. It is the intention of the faculty to create an environment in which students are challenged to acquire skills in problem solving utilizing the modern methods of science and to study in-depth the chemical processes which characterize life systems while developing an inquiring attitude toward scientific exploration. The curriculum is intended to provide liberal arts students with a working knowledge of science and to meet the needs of students who wish to:

- continue study in chemistry at the graduate level;
- teach science at the elementary or secondary school level;
- prepare to enter a health science profession such as medicine, dentistry, medical technology, pharmacy, nursing, physical therapy, or other allied health fields; or
- become a professional/industrial chemist.

Students who complete the chemistry or biochemistry degree as described below or upon their coursework being approved by the chair of the department, will receive degrees that are certified by the American Chemical Society. Our certified programs offer students a broad-based and rigorous chemistry education that provides them the intellectual, experimental, and communication skills necessary to become successful scientific professionals.

Research, 3 hours from: 424 or 425

C. One of: 405, 430, 435

II. Major in Biochemistry—70 hours

A. CHE 111, 112, 211, and 221—13 hours
B. CHE 314, 315, 324, 326—10 hours
C. CHE 317, 318, 319, 327, 335—19 hours
D. CHE 424/425—3 hours
E. CHE 498—1 hour
F. BIO 112, 211, 315, 325—16 hours
G. BIO—one 200-level Elective—4 hours
H. BIO—one 300-level Elective—4 hours
I. No minor is required.

III. Major in Medical Technology—102–105 hours

A. Chemistry 111, 112, 211-21, 314-15, 319, 324, 326
B. Biology 112, 211, 221, 222, 315, 316, 320
C. Physics 213-214 or 231-232
D. Computer Science (3 hours) and MAT 111 or preferably MAT 211
E. A minimum of 33 hours of Medical Technology at an affiliated hospital as the fourth year of study.

IV. Major in Chemical Physics—119 hours

Designed for those seeking a broad background in the physical sciences to pursue graduate work in chemistry or physics or secondary teacher licensure, the major permits students with previous experiences to shorten the time spent in formal education without reducing the quality of the degree obtained.

Students with an advanced preparation in secondary school or as college sophomores may be selected for this program. Entrance as a freshman requires an ACT Composite of 26 or higher with a Math ACT of 25 or higher, 4 units of high school math with a B average or better, high school chemistry and physics with a B average or better, and a successful personal interview with a faculty admissions committee. Entrance as a sophomore requires readiness to enter MAT 211, CHE 111 and PHY 231 with a cumulative and science GPA of 2.5 or higher, and a successful interview with admissions committee.

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; 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, EDU 358, PSY 213, 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 Director of Educator Preparation.

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

( ) 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. Course includes a lab. Both lecture and lab are taught through internet delivery. 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 professions except Nursing. Science credit will not be given to a student who has completed a course in either CHE or PHY. Three 1-hour lectures and one 2-hour laboratory period/week.

106. Fundamentals of Chemistry II (4) As Needed

Prerequisite: CHE 105 or 111.

A beginning course in organic and biochemistry with emphasis on topics specifically related to the health sciences: carbohydrates, fats, proteins, vitamins, hormones, normal and abnormal metabolic processes, and the role of ATP. Not open to science majors other than physical science and nursing. Three 1-hour lectures and one 3-hour laboratory period/week.

111. General Chemistry (4) F, W

Prerequisite: ACT math subscore 21 or higher or instructor consent.

A comprehensive study of the fundamental experiments, principles, and theories of chemistry with emphasis on quantitative relationships. The structure and properties of matter with their energy relationships are stressed. Three (four for enhanced sections)1-hour lectures and one 3-hour laboratory/week.

112. Chemical Equilibrium (4) W, S

Prerequisite: CHE 111.

Quantitative study of chemical principles, including detailed study of the principles of equilibrium in chemical systems. Three 1-hour lectures and one 3-hour laboratory period/week.

113. Survey of Chemical Instrumentation (2) W—Even Years, S—Odd Years

Prerequisite: CHE 111.

An introduction to chemical instrumentation used in industry, including titrations, spectroscopy, and chromatography. One lecture and one 3-hour lab/week.

211. Analytical Chemistry (3) S

Prerequisite: CHE 112; Corequisite: CHE 221.

A continuation of the study of fundamental principles including topics in statistics, gravimetric analysis, titrimetric analysis (neutralization, precipitation, complex formation, oxidation-reduction), and spectrophotometric and electrochemistry analysis. Three 1-hour lectures/week.

221. Analytical Chemistry Laboratory (2) S

Prerequisite: CHE 112; Corequisite: CHE 211.

The application of gravimetric, titrimetric, spectrophotometric quantitative analysis, and chromatographic separations to the study of chemistry. Two 3-hour laboratory periods/week.

300. Chemical Safety and Health (1) S—Even Years

Safety policies and procedures for the use of hazardous chemicals. Topics include awareness, routes of chemicals into the body, safety apparatus and use; identification, types of chemical hazards; proper ways to handle, store, and dispose of hazardous chemicals.

314. Organic Chemistry I (3) F

Prerequisite: CHE 112; Corequisite: CHE 324.

An introduction to the compounds of carbon, with emphasis on the relationship between structure and properties. Applications of bonding theory, reaction mechanisms, and stereochemistry are included. Some functional groups containing haloS6 (1)3BDC BT-0.059

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 humans. Methods employed in the identification of bacteria, fungi, viruses, and rickettsiae.

423. Serology (2)

A lecture and lab course in immunology, including demonstrating reactions between antigens and antibodies. Use of these reactions as a serodiagnostic tool is presented.

424. Immunohematology (5)

Includes selection, testing and bleeding of donors, identification of blood group antigens and antibodies, procedures employed in providing compatible blood for patients, and principles and procedures used in blood component therapy.

425. Parasitology (2)

A study of parasites of medical significance, both indigenous and foreign, with particular emphasis on life cycles and identification.

431. Urinalysis (2)

Gross, physical, microscopic, and chemical analysis of urine.

432. Clinical Correlations (1)

Basic understanding of altered physiology in disease; correlation between laboratory test results and anatomical/physiological changes.

440. Principles of Management and Ethics (0)

Preparation for the medical graduate for positions of leadership as supervisors and instructors.

179-279-379-479. External Domestic Study Programs (1-3) As Needed

All courses and their applications must be defined and approved prior to registering.

179PF-279PF-379PF-479PF. External Domestic Study Programs (Pass/Fail) As Needed

All courses and their applications must be defined and approved prior to registering.

180-280-380-480. Study Abroad Programs (1-4)

All courses and their application must be defined and approved prior to travel.

180PF-280PF-380PF-480PF. Study Abroad Programs (Pass/Fail) As Needed

All courses and their applications must be defined and approved prior to travel.

195-6-7. Special Studies (1-4)
295-6-7. Special Studies (1-4)

Lower-level group studies which do not appear in the regular departmental offerings.

395-6-7. Special Studies (1-4)

Upper-level group studies which do not appear in the regular departmental offerings.

495-6-7. Independent Study (1-4)

Individual study under the guidance of a faculty member(s).

489-9. Seminar (1-3)

To be used at the discretion of the department.