

What have Ferrum chemistry students been doing? They have been analyzing phosphate levels in all reaches of Smith Mountain Lake, investigating the use of xylanase enzyme to reduce bleaching chemicals required in the paper industry, using gel electrophoresis for genetic analysis of the proteins in endangered fox squirrel blood samples, and investigating the structural basis for the properties of polymers in adhesives and composites. These research investigations by students at Ferrum illustrate the diversity of the field of chemistry, which intersects with physics, biology, engineering, and biotechnology. Our strong traditional chemistry curriculum in Ferrum's liberal arts college environment is ideal for developing our students' knowledge base as well as their thinking and communication skills. Our students gain additional practical experience through research and assisting us with laboratories. We are also committed to expanding students' horizons and further initiating them into the chemistry profession by involving them in off-campus field trips, short courses, professional meetings, and summer research and internship opportunities.

Ferrum's chemistry program benefits from being part of the **School of Natural Sciences and Mathematics**, which also includes strong majors in agriculture, biology, environmental science, health sciences, horticulture and pre-professional science. Close contact with these other programs provides chemistry students with a greater understanding of the applications of chemistry in other fields.

We are pleased to find that the success of our students in chemistry has consistently continued in graduate, medical, and pharmacy schools, as well as in their careers. With appropriate minor or elective courses, a Ferrum B.A. or B.S. in chemistry prepares our graduates to begin careers in business, industry, government, and secondary education. They are also prepared to enter graduate school (where a tuition waiver and stipend are usually provided) in chemistry and biochemistry or in interdisciplinary fields such as pharmacology, environmental engineering, forensic science, toxicology, and biotechnology. Chemistry is recognized as a strong core for any curriculum tailored to prepare students for professional schools in veterinary and human medicine and pharmacy.

### **B.S. Degree Required Courses:**

*(without Minor)*

CHM 103 General Chemistry	4
CHM 104 General Chemistry	4
CHM 301 Organic Chemistry	4
CHM 302 Organic Chemistry	4
CHM 305 Analytical Chemistry	4
CHM 315 Biochemistry	3
CHM 341 Physical Chemistry	3
CHM 342 Physical Chemistry	3
CHM 405 Advanced Chem Lab	2
CHM 425 Inorganic Chemistry	3
CHM 412 Environ. Chemistry	<b>or</b>
CHM 331 Forensic Science	3-4
CHM 395, 396, 495, 496	
Independent Research	3
LSC 307 Junior Seminar	1
LSC 497 Senior Seminar	1
LSC 498 Senior Seminar	1
PHY 203, 204	
Fundamentals of Physics	8

### **Required Distribution Courses:**

BIO 101 General Biology	4
BIO 102 General Biology	
(or higher)	4
MTH 211 Calculus	3
MTH 212 Calculus	3

### **Choose one from the following:**

MTH 208 Statistics	
ESC/MTH 215 Quantitative Environ. Methods & Statistics	
MTH 221 Calculus	
MTH 301 Multivariable Calculus	
CSC 111 Computer Science I	

## **B.A. Degree Required Courses:**

*(Minor required)*

CHM 103 General Chemistry	4
CHM 104 General Chemistry	4
CHM 301 Organic Chemistry	4
CHM 302 Organic Chemistry	4
CHM 305 Analytical Chemistry	4
CHM 315 Biochemistry	3
CHM 341 Physical Chemistry	3
CHM 425 Inorganic Chemistry	3
LSC 307 Junior Seminar	1
LSC 497 Senior Seminar	1
LSC 498 Senior Seminar	1

### **Seven additional credit hours from the following:**

CHM 331 Forensic Science	4
CHM 405 Advanced Chem Lab	2
CHM 412 Environ. Chemistry	3
CHM 390, 490 Selected Topics	1-4
CHM 395, 396, 495, or 496 Independent Research	1-3

### **Required Distribution Courses:**

BIO 101 General Biology	<i>or</i>	
BIO 102 General Biology		4
MTH 203 Concepts in Calculus	<i>or</i>	
MTH 211, 212 Calculus		3-6
PHY 201, 202 General Physics	<i>or</i>	
PHY 203, 204 Fundamentals of Physics		8

## **FACULTY:**

DAVID M. JOHNSON

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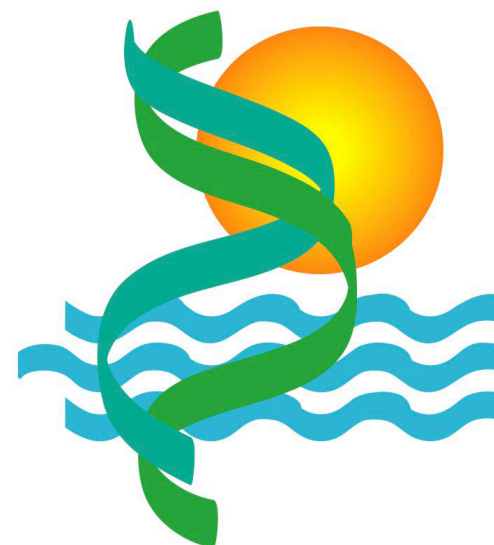
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# Chemistry



## **School of Natural Sciences & Mathematics**

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