CHEMISTRY MAJOR

Each student must confer with the major advisor to plan a program that takes into account specific interests and career goals. The major requirements have been designed to meet the educational needs of students interested in careers in **chemistry, medicine, K-12 education, forensics, business, and law.**

Chemistry majors can select among five different programs of emphasis all of which are ACS certified:

- General Emphasis
- Biochemistry Emphasis
- Research Emphasis
- Forensic Science Emphasis
- Education Emphasis

Students who intend to pursue a career in the medical field (medicine, dentistry, veterinary science and pharmacy) after graduation are encouraged to pursue the Biochemistry Emphasis. This emphasis is designed to meet the requirements of many allied health professions while providing the student with a firm foundation in chemistry, biochemistry, and biology. Interested students should contact Dr. Green, faculty advisor of the biochemistry emphasis.

Students who intend to pursue a career in chemistry after graduation are encouraged to pursue the Research Emphasis. This emphasis is designed to support students who want to earn a Ph.D. or master's degree in chemistry after graduation. Interested students should contact Dr. Schreiner, faculty advisor of the research emphasis.

Students who are interested in K-12 education in chemistry should pursue the Education Emphasis. This emphasis works in conjunction with the minor in education to enable students to obtain teacher certification after graduation from Randolph-Macon. Interested students should contact Dr. Borowski, advisor of the education emphasis.

Students who intend to work in forensic science after graduation should pursue the Forensic Science Emphasis. Interested students should contact Dr. Borowski, advisor of the forensic science emphasis.

Requirements for a Major in Chemistry

Bachelor of Science

Code	Title	Hours
CHEM 220	Basic Inorganic Chemistry	4
CHEM 230	Quantitative Chemical Analysis	4
CHEM 261	Organic Chemistry	4
CHEM 262	Organic Chemistry	4
CHEM 311	Introduction to Physical Chemistry	4
CHEM 322	Instrumental Methods of Analysis	4
CHEM 345	Junior Seminar	1
CHEM 407	Biochemistry I	4
CHEM 445	Senior Seminar	1
PHYS 151	Introductory Physics	4
PHYS 152	Introductory Physics	4
MATH 131 & MATH 132	Calculus I and Calculus II	8
Select one of the following: [1]		1-6
CHEM 490	Learning from Chem Literature	
CHEM 496 & CHEM 498	Senior Project and Senior Project	
Student Teaching (only for Education Emphasis)		
Select all requirements in one of the following Emphases:		9-14
General Emphasis (p. 1)		
Research/Graduate School Emphasis (p. 1)		
Biochemistry Emphasis (p. 1)		
Forensic Science Emphasis (p. 2)		
Education Emphasis (p. 2)		
Total Hours		**56-66**

Emphases

General Emphasis

Code	Title	Hours
Select three of the following:		9-12
CHEM 305	Chemistry in Earth Systems	
CHEM 312	Advanced Physical Chemistry	
CHEM 335	Forensic Chemistry	
CHEM 390	Introduction to Nanochemistry	
CHEM 400	Chemical Internship	
CHEM 401	Advanced Experimental Chemistry	
CHEM 402	Medicinal Chemistry	
CHEM 404	Advanced Organic Chemistry	
CHEM 405	Advanced Inorganic Chemistry	
CHEM 406	Introduction to Organometallic Chemistry	
CHEM 408	Biochemistry II	
Total Hours		**9-12**

Research/Graduate School Emphasis[1]

Code	Title	Hours
CHEM 312	Advanced Physical Chemistry	3
CHEM 405	Advanced Inorganic Chemistry	3
or CHEM 406	Introduction to Organometallic Chemistry	
Select one of the following:		3-4
CHEM 305	Chemistry in Earth Systems	
CHEM 335	Forensic Chemistry	
CHEM 390	Introduction to Nanochemistry	
CHEM 400	Chemical Internship	
CHEM 401	Advanced Experimental Chemistry	
CHEM 402	Medicinal Chemistry	
CHEM 404	Advanced Organic Chemistry	
CHEM 408	Biochemistry II	
Total Hours		**9-10**

Biochemistry Emphasis

Code	Title	Hours
CHEM 408	Biochemistry II	3
Select one of the following:		4
BIOL 200	Genetics	
BIOL 201	Cell Biology	
BIOL 311	Microbiology	

Select one of the following:		3-4
CHEM 305	Chemistry in Earth Systems	
CHEM 312	Advanced Physical Chemistry	
CHEM 335	Forensic Chemistry	
CHEM 400	Chemical Internship	
CHEM 401	Advanced Experimental Chemistry	
CHEM 402	Medicinal Chemistry	
CHEM 405	Advanced Inorganic Chemistry	
CHEM 406	Introduction to Organometallic Chemistry	
Total Hours		**10-11**

Forensic Science Emphasis

Code	Title	Hours
CHEM 335	Forensic Chemistry	3
Select two of the following:		6-8
CHEM 305	Chemistry in Earth Systems	
CHEM 312	Advanced Physical Chemistry	
CHEM 400	Chemical Internship	
CHEM 401	Advanced Experimental Chemistry	
CHEM 402	Medicinal Chemistry	
CHEM 405	Advanced Inorganic Chemistry	
CHEM 406	Introduction to Organometallic Chemistry	
CHEM 408	Biochemistry II	
Total Hours		**9-11**

Education Emphasis

Code	Title	Hours
Select one of the following:		3
CHEM 305	Chemistry in Earth Systems	
CHEM 312	Advanced Physical Chemistry	
CHEM 401	Advanced Experimental Chemistry	
CHEM 402	Medicinal Chemistry	
CHEM 405	Advanced Inorganic Chemistry	
CHEM 406	Introduction to Organometallic Chemistry	
CHEM 408	Biochemistry II	
Additional Requirements for State Licensure [2]		
BIOL 123	Principles in Molecular Biology	3
Select one course from the following:		4
EVST 105	Environmental Problem Solving I	
GEOL 101	Introduction to Geology and the Environment	
GEOL 102	A Geologic History of Earth	
Total Hours		**10**

1

Students completing the Research/Graduate School Emphasis must select CHEM 496-CHEM 498 as their Capstone.

2

Students completing the education emphasis must also complete ENGL 185 and the Education minor (https://rmc.courseleaf.com/programs/education/education-minor-secondary/) for teaching licensure.