



UNIVERSITY OF COLORADO
AT COLORADO SPRINGS

COLLEGE OF LETTERS, ARTS
AND SCIENCES

Department of Chemistry

Department Chair: Dr. Ronald Ruminski, Professor

Science Building 239 (719) 262-3194 rruminsk@uccs.edu

Department Website: <http://web.uccs.edu/chemistry/>

Objectives:

- Chemistry is concerned with the properties of matter, the interactions between substances, chemical reactions and the energy changes that accompany chemical reactions.
- CU-Colorado Springs offers a Bachelor of Arts, Bachelor of Science and minor in chemistry.
- The Bachelor of Arts degree prepares students for advanced training in such areas as medicine, law, or the life sciences.
- The Bachelor of Science degree, which is certified by the American Chemical Society, is designed for students who wish to pursue a career as a chemist or continue their education in chemistry at the graduate level.
- Many graduates of the chemistry program have obtained employment in the semiconductor industry or with local governmental agencies. Some graduates have taken employment in the chemical industry while others have continued their education in chemistry, medicine, or dentistry.
- Get more involved on campus! Join Gamma Sigma Epsilon, the Pre-Med Society, SAACS, the Forensic Science Club or the Homebrew Club to meet other students also interested in this field. Contact the ROAR office at roar@uccs.edu or 262-3470 for information.

General Chemistry Major, B.A. - 50 credits, 40 upper division

(NOTE: CHEM 100, 101, 102, 108, 110, 111, 115, 121, 124, 151 and 153 cannot be counted toward this major)

(Grade of 'C' or higher must be attained in *all* required courses.)

	<u>Credits</u>
CHEM 103 General Chemistry I	5
CHEM 106 General Chemistry II	5
CHEM 331 Organic Chemistry I	3
CHEM 332 Organic Chemistry II	3
CHEM 337 Practical Organic Chemistry I	2
CHEM 338 Practical Organic Chemistry II	2
CHEM 401 Modern Inorganic Chemistry	3
CHEM 417 Analytical Chemistry I	4
CHEM 418 Analytical Chemistry II	3
CHEM 420 Practical Instrumental Analysis	2
CHEM 451 Physical Chemistry I	3
CHEM 452 Physical Chemistry II	3
CHEM 454 Experimental Physical Chemistry	1
CHEM 483 Biochemistry Principles	3
CHEM 495 Chemistry Seminar I	1
CHEM 496 Chemistry Seminar II	1
Upper division chemistry electives (2 courses; may include up to 6 hours of independent study)	6
<u>Auxiliary Requirements</u>	
BIOL 110, 111 General Biology I + Lab	4
PES 111, 116, 112, 216 General Physics + Lab I/II	10
MATH 135, 136 Calculus I and II	8
CHEM 108 Introduction to Chemistry Lab Research (recommended)	3

General Education Requirements**

**Students are required as part of their general education requirements to complete courses in Oral Communication, Cultural Diversity, and Global Awareness. These courses are identified in the LAS section of the schedule of courses and in the bulletin.

Composition Requirement	6
Humanities Area Requirement	
General	9
Core	3
Social Science Area Requirement	12
General electives	<u>+18</u>
Total Credits- 45 upper division (300-400) level	120

MODEL DEGREE PROGRAM

CHEMISTRY, B.A. (CHEM)

The following four-year plan lists all the specific course requirements for the Bachelor of Arts in Chemistry degree. The order in which these courses are taken may vary with course availability. **Students are responsible for completing all course prerequisites.** Please note that this is a *suggested* degree program; your program may vary.

Suggested First Year

FALL

- _____ ENGL131 Rhetoric & Writing I
(Prer. of ENGL099 or ACT 19+ or SAT 450+)*
- _____ MATH135 Calculus I-4 cr (Prer. MATH105 or score of 10+ on Calc. Readiness Exam)
- _____ CHEM103 General Chemistry I-5 cr
(Prer. 1 yr high school chemistry and 2 years high school math)
- _____ ID101 Freshmen Seminar OR General Elective
- TOTAL=15 credits**

SPRING

- _____ ENGL141 Rhetoric & Writing II
(Prer. of ENGL131 or ACT 29+ or SAT 650+)*
- _____ MATH136 Calculus II-4 cr (Prer. MATH135)
- _____ CHEM106 General Chemistry II-5 cr
(Prer. CHEM103 with grade of 'C' or higher)
- _____ General Humanities Elective
- TOTAL=15 credits**

Suggested Second Year

FALL

- _____ BIOL110/111 Gen. Biology I + Lab-4 cr (FALL ONLY)
(Prer. high school chemistry or coreq. CHEM103)
- _____ PES 111/116 General Physics I + Lab-5 cr
(Coreq. MATH135)
- _____ CHEM331 Organic Chemistry I
(Prer. CHEM106 with grade of 'C' or higher)
- _____ CHEM337 Practical Organic Chemistry I-2 cr (FALL ONLY)
(Prer. CHEM106 with grade of 'C' or higher)
- TOTAL=14 credits**

SPRING

- _____ PES 112/216 General Physics II + Lab-5 cr
(Prer. PES 111; Coreq. MATH136)
- _____ CHEM332 Organic Chemistry II
(Prer. CHEM331 and CHEM337 with grades of 'C' or higher)
- _____ CHEM338 Pract Org Chem II-2 cr (SPRING ONLY)
(Prer. CHEM331 and CHEM337 with grades of 'C' or higher)
- _____ General Humanities Elective
- _____ Social Science Elective
- TOTAL=16 credits**

Suggested Third Year

FALL

- _____ CHEM417 Analytical Chemistry I-4 cr (FALL ONLY)
(Prer. CHEM106 with grade of 'C' or higher)
- _____ CHEM451 Physical Chemistry I (FALL ONLY) (Prer. PES 112/115, MATH136 and CHEM332 with grades of 'C' or higher)
- _____ CHEM483 Biochemistry Principles
(Prer. BIOL110/111 and CHEM332)
- _____ Social Science Elective
- _____ General Elective

TOTAL=16 credits

SPRING

- _____ CHEM418 Analytical Chem. II (SPRING ONLY) (Prer. PES112, CHEM417 with grade of 'C' or higher; Coreq. CHEM420; Prer./Coreq. CHEM452)
- _____ CHEM452 Physical Chemistry II (SPRING ONLY)
(Prer. CHEM451 with grade of 'C' or higher; Coreq. CHEM454)
- _____ CHEM420 Pract Instrumental Analysis-2 cr (SPRING ONLY) (Prer. CHEM417 and CHEM452; Coreq. CHEM418)
- _____ CHEM454 Exp. Physical Chem.-1cr (SPRING ONLY)
(Prer. CHEM417 and CHEM451 with grades of 'C' or higher; Coreq. CHEM452)
- _____ General Humanities Elective
- _____ General Elective
- TOTAL=15 credits**

Suggested Fourth Year

FALL

- _____ CHEM495 Chemistry Seminar I-1 cr (FALL ONLY)
(Prer. CHEM332 and CHEM417 OR CHEM451)
- _____ CHEM401 Modern Inorganic Chem (FALL ONLY)
(Prer. CHEM332, CHEM 417, and CHEM 451 with grades of 'C' or higher)
- _____ HUM300+ Core Humanities (Prer. of junior status)
- _____ Social Science Elective
- _____ General Elective
- TOTAL=16 credits**

SPRING

- _____ CHEM496 Chemistry Seminar II -1 cr (SPRING ONLY)
(Prer. CHEM495)
- _____ Upper Division (UD) CHEM Elective
- _____ UD CHEM Elective
- _____ Social Science Elective
- _____ UD General Elective
- _____ General Elective
- TOTAL=13 credits**

All courses are 3 credits unless otherwise stated.

*ACT/SAT placement scores are based on the English section of the exam only.

Courses fulfilling General Humanities and Social Sciences, as well as the Global Awareness (G), Cultural Diversity (D) and Oral Communication (O) requirements, may be found in the Bulletin or the current schedule.

Electives may be used toward a minor, a 2nd major, prerequisites, additional courses in Chemistry (up to 54 credits maximum) or just for fun!