

Chemistry, BS - Pure Chemistry Concentration

This concentration meets the requirements of the American Chemical Society for certification and is designed for a student who plans to do graduate work in chemistry or a related science or desires an industrial position that requires a strong chemical background.

Chemistry: Pure Chemistry Concentration, BS Requirements:

- All students are encouraged to see an advisor after completion of 24 credits.
- Chemistry, Pure Chemistry Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (<http://catalog.uah.edu/undergrad/policies-procedures/application-graduation/>).

Degree Requirements

Charger Foundations Requirements

*Please see Area V for CoS requirements that can also be used to fulfill Charger Foundations Requirements.

Code	Title	Semester Hours
Area I: Freshman Composition		3-6
EH 101 or EH 101S	COLLEGE WRITING I COLLEGE WRITING I W/STUDIO	
EH 102	COLLEGE WRITING II	
EH 103	ACCELERATED COLLEGE WRITING	
EH 105	HONORS ENGLISH SEMINAR	
Area II: Humanities and Fine Arts*		12
Fine Arts		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR: WORLD ART	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
TH 123	INTRO TO FILM STUDIES	
MU 100	INTRO TO MUSIC LITERATURE	
Literature		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 209	HONORS SEM READINGS LIT/CUL I	
EH 210	HONORS SEM READINGS LIT/CUL 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts		3-6
CM 113	Intro to Rhetorical Communication	
WLC 101S or WLC 101A or WLC 101F or WLC 101G or WLC 101J or WLC 101R	INTRO FOREIGN LANG I: SPANISH INTRO FOREIGN LANG I: ARABIC INTRO FOREIGN LANG I:FRENCH INTRO FOREIGN LANG I:GERMAN INTRO FOREIGN LANG I:JAPANESE INTRO FOREIGN LANG I:RUSSIAN	
WLC 102S or WLC 102A	INTRO FOREIGN LANG II:SPANISH INTRO FOREIGN LANG II: ARABIC	

or WLC 102F	INTRO FOREIGN LANG II:FRENCH	
or WLC 102G	INTRO FOREIGN LANG II:GERMAN	
or WLC 102J	INTRO FOREIGN LANG II:JAPANESE	
or WLC 102R	INTRO FOREIGN LANG II:RUSSIAN	
WLC 201S	INTERM FOREIGN LANG:SPANISH	
or WLC 201A	INTERM FOREIGN LANG I: ARABIC	
or WLC 201F	INTERM FOREIGN LANG:FRENCH	
or WLC 201G	INTERM FOREIGN LANG:GERMAN	
or WLC 201J	INTERM FOREIGN LANG: JAPANESE	
or WLC 201R	INTERM FOREIGN LANG:RUSSIAN	
WLC 202S	INTERM FOREIGN LANG II:SPANISH	
or WLC 202A	INTERM FOREIGN LANG II: ARABIC	
or WLC 202F	INTERM FOREIGN LANG II:FRENCH	
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202J	INTERM FORGN LANG II:JAPANESE	
or WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	
WLC 204	INTERNATIONAL CINEMA	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
AMS 229	ANCIENT & MEDIEVAL WORLDS	
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR: WORLD ART	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
TH 123	INTRO TO FILM STUDIES	
MU 100	INTRO TO MUSIC LITERATURE	
Area III: Mathematics and Sciences		11-12
Mathematics		3-4
MA 105	NATURE OF MATHEMATICS	
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences (Lab)		8
AST 100	SURVEY OF ASTRONOMY	
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 109	FUNDAMENTALS OF BIOLOGY	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
BYS 215	HUMAN ANATOMY & PHYSIOLOGY I	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	

CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 151 & CH 105	GENERAL, ORGANIC, BIOCHEMISTRY and INTRO CHEMISTRY LAB	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	

Area IV: History and Social and Behavioral Sciences* **12**

History 3-6

HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	

Social and Behavioral Sciences 6-9

ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
ESS 105	WORLD REGIONAL GEOGRAPHY	
ESS 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 103	INTRO TO CRIMINOLOGY	
SOC 105		

* Take either 1 EH (Area II) + 2 HY (Area IV) <OR> 2 EH (Area II) + 1 HY (Area IV). Take no more than six hours in a single discipline in Area II or Area IV.

Area V: Pre Professional Requirements

Code	Title	Semester Hours
Courses in this area may also be used to fulfill Charger Foundations requirements		
Communications		3
CM 113	Intro to Rhetorical Communication	
Biology		8
BYS 119 & 119L & 119R	PRINCIPLES OF BIOLOGY and LABORATORY and RECITATION	
BYS 120 & 120L & 120R	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB and RECITATION	
Physics		8

PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
Calculus		12
MA 171	CALCULUS A	
MA 172	CALCULUS B	
MA 201	CALCULUS C	
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
or CS 102	INTRO TO C PROGRAMMING	
or CS 103	INTRO PROGRAMMING USING JAVA	
or CS 104	INTRO TO CS USING PYTHON	
Technical Writing		3
EH 301	TECHNICAL WRITING	

Major Requirements

Code	Title	Semester Hours
Chemistry Core		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵	
CH 332	ORGANIC CHEMISTRY II ⁵	
CH 361	GENERAL BIOCHEMISTRY	
CH 401	INORGANIC CHEMISTRY	
Pure Chemistry Concentration Requirements		18-20
CH 336	ORGANIC CHEMISTRY LAB II ⁵	
CH 337	ORGANIC CHEMISTRY LAB III	
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	
CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	
CH 362	GENERAL BIOCHEMISTRY LAB	
CH 402	INORGANIC CHEMISTRY LAB	
CH 421	INSTRUMENTAL ANALYSIS	
CH 491	INTRO TO CHEMICAL RESEARCH	
or CH 492	INTRO TO CHEMICAL RESEARCH	
or CH 493	INTRO TO CHEMICAL RESEARCH	

Elective Requirements

Code	Title	Semester Hours
Elective Courses		19-21

Additional elective courses, 100+ level, to reach 128 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Overall Requirements

Code	Title	Semester Hours
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All College of Science degrees must have at least 128 credits.

At least 39 of the 128 credits must be at the 300+ level. These may be taken in any area including electives.

Total Semester Hours **128**

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. Acceptable Literature sequences must include one early literature (EH 207 or EH 242 or EH 209) and one later literature (EH 208 or EH 210). Acceptable history sequences are (HY 103 + HY 104), or (HY 221 + HY 222)
- 2 Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement/>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- 3 No more than 6 hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures/#coursestext>) department.
- 5 Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the major.

Sample four year plan for Chemistry, Pure Chemistry Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
FYE 101S	CHARGER SUCCESS - SCIENCE	1
EH 101	COLLEGE WRITING I	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
BYS 119 & 119L & 119R	PRINCIPLES OF BIOLOGY and LABORATORY and RECITATION	4
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
MA 172	CALCULUS B	4
BYS 120 & 120L & 120R	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB and RECITATION	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		Semester Hours
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
MA 201	CALCULUS C	4
Fine Art		3
See Requirements tab for approved list		
Elective		1

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.

	Term Semester Hours:	16
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
Literature		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
	Term Semester Hours:	16
Year 3		
Fall		
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
CH 337	ORGANIC CHEMISTRY LAB III	2
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Social and Behavioral science		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	15
Spring		
CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
CM 113	Intro to Rhetorical Communication	3
Social and Behavioral science		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
	Term Semester Hours:	17
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
EH 301	TECHNICAL WRITING	3
2nd History or 3rd Social and Behavioral science		3
See Requirements tab for approved list.		

CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
or CS 104	or INTRO TO CS USING PYTHON	
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	Term Semester Hours:	16
Spring		
CH 402	INORGANIC CHEMISTRY LAB	1
CH 493	INTRO TO CHEMICAL RESEARCH	3
or CH 491	or INTRO TO CHEMICAL RESEARCH	
or CH 492	or INTRO TO CHEMICAL RESEARCH	
Elective 300+ level or higher course.		3
Elective		3
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
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	Term Semester Hours:	16
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	Total Semester Hours:	128