

Biological Sciences, BS - Biochemistry Concentration

Biological Sciences, Biochemistry Concentration, BS Requirements:

- All students are encouraged to see an advisor after completion of 24 credits.
- Biological Sciences, Biochemistry 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 or WLC 102F	INTRO FOREIGN LANG II:SPANISH INTRO FOREIGN LANG II: ARABIC 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 fulfill Charger Foundations requirements		
Communications:		3
CM 113	Intro to Rhetorical Communication	
Calculus		8
MA 171	CALCULUS A	
MA 172	CALCULUS B	
Physics Sequence		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	
Computer Programming - 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
------	-------	----------------

Biology Core⁵ **18**

BYS 119 & 119L & 119R	PRINCIPLES OF BIOLOGY and LABORATORY and RECITATION
BYS 120 & 120L & 120R	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB and RECITATION
BYS 219 & 219L & 219R	GENETICS AND EVOLUTION and LABORATORY and RECITATION
BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB
BYS 490	SENIOR CAPSTONE

Biochemistry Concentration Requirements **18**

BYS 321 & 321L	GENERAL MICROBIOLOGY I and LABORATORY
BYS 361	GENERAL BIOCHEMISTRY
BYS 363 & BYS 365	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II

Biology Elective courses 300+ level (7 credits)

Chemistry Minor Requirements (this minor is required for this concentration)

Code	Title	Semester Hours
------	-------	----------------

Chemistry Minor **21**

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
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II
CH 362	GENERAL BIOCHEMISTRY LAB

Elective Requirements

Code	Title	Semester Hours
------	-------	----------------

Elective Courses **15-19**

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
------	-------	----------------

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 credit 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/>) department.
- 5 Biology pre requisites require a minimum grade of D- or higher. BYS 301 and BYS 314 pre requisites require a minimum grade of C- or higher.

Sample four year plan for Biological Sciences, Biochemistry 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
BYS 119 & 119L & 119R	PRINCIPLES OF BIOLOGY and LABORATORY and RECITATION	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
BYS 120 & 120L & 120R	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB and RECITATION	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
MA 172	CALCULUS B	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
BYS 219 & 219L & 219R	GENETICS AND EVOLUTION and LABORATORY and RECITATION	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
Literature		3
See Requirements tab for approved list.		
Fine Art		3
See Requirements tab for approved list.		
Social/Behavioral Science		3

See Requirements tab for approved list.

	Term Semester Hours:	17
Spring		
BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
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
Humanities, 2nd Fine Art or 2nd Literature		3
See Requirements tab for approved list.		
	Term Semester Hours:	15
Year 3		
Fall		
BYS 300+ level or higher course		3
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
Social/Behavioral Science		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
	Term Semester Hours:	17
Spring		
BYS 300+ level or higher course		3
BYS 321 & 321L	GENERAL MICROBIOLOGY I and LABORATORY	4
CS 100 or CS 102 or CS 103 or CS 104	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA or INTRO TO CS USING PYTHON	3
CM 113	Intro to Rhetorical Communication	3
2nd History or 3rd Social/Behavioral Science		3
See Requirements tab for approved list.		
	Term Semester Hours:	16
Year 4		
Fall		
BYS 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
EH 301	TECHNICAL WRITING	3
Elective 300+ level or higher course		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 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	16

Spring

BYS 363 & BYS 365	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II	4
BYS 490	SENIOR CAPSTONE	2
Elective 300+ level or higher course		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 credit hours of 100 level HPE courses can count toward degree requirements.

Term Semester Hours:	15
Total Semester Hours:	128
