

Physics, BS - Secondary Education Certification

Physics, Secondary Education Concentration, BS Requirements:

- All students are encouraged to see an advisor after completion of 24 credits.
- Physics, Secondary Education Concentration, BS degree requires 142-143 credit hours.
- 39 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/>).

This concentration leads to a B.S. degree with a major in Physics, and meets the requirements for an Alabama Class B Middle/Junior High School Teacher's Certificate or an Alabama Class B High School Teacher's Certificate.

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 fulfill Charger Foundations requirements		
Communications		3
CM 113	Intro to Rhetorical Communication	
Chemistry sequence		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
Mathematics ²		18
MA 171	CALCULUS A	
MA 172	CALCULUS B	

MA 201	CALCULUS C	
MA 238	APPL DIFFERENTIAL EQUATIONS	
MA 244	INTRO TO LINEAR ALGEBRA	
Computer Science		3
CS 102 or CS 104	INTRO TO C PROGRAMMING INTRO TO CS USING PYTHON	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Science or Engineering course: Choose one		3-4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	
BYS 119 & 119L & 119R	PRINCIPLES OF BIOLOGY and LABORATORY and RECITATION	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CS 121	COMPUTER SCIENCE I	
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 281	ELEMENTS OF STATISTICAL ANALYS	
Higher level math course		
Engineering course		

Major Requirements

Code	Title	Semester Hours
Physics Core		28
PH 110	FRONTIERS IN SCIENCE	
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	
PH 251	SPECIAL RELATIVITY	
PH 301	INTERMEDIATE MECHANICS	
PH 305	MATH METHODS IN PHYSICS	
PH 351	INTRODUCTION TO MODERN PHYSICS	
PH 499	PHYSICS PRACTICUM	
Physics Elective Courses		8
PH/OPT/AST 300+ level or higher course		
PH/OPT/AST 300+ level or higher course		
PH/OPT/AST 300+ level or higher course		
Secondary Education Concentration Requirements		40
ED 301	INTRO TO EDUCATION PRACTICUM	
ED 307	MULTICULTURAL FND EDUCATION	
ED 308	EDUCATIONAL PSYCHOLOGY	
EDC 301	TCHG THE EXCEPTIONAL CHILD	
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	
ED 410	FOUNDATIONS EDUC EVALUAT	

ED 423	TCHNG SCIENCE MID & SEC SCH I
ED 350	TECHNOLOGY IN CLASSROOM
ED 408	TCHG READING/CONTENT AREA
ED 309	CLASSROOM & BEHAVIOR MGMT
ED 497	HIGH SCHOOL INTERNSHIP

Total Semester Hours **142-143**

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 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.

Sample Four-Year Plan for Physics, Secondary Education Concentration, BS degree:

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

Year 1

Fall		Semester Hours
FYE 101S	CHARGER SUCCESS - SCIENCE	1
PH 110	FRONTIERS IN SCIENCE	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
EH 101	COLLEGE WRITING I	3

Term Semester Hours: 15

Spring

EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4

Term Semester Hours: 15

Year 2

Fall		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
MA 201	CALCULUS C	4
CS 102 or CS 104	INTRO TO C PROGRAMMING or INTRO TO CS USING PYTHON	3
Fine Art		3

See Requirements tab for approved list.

Term Semester Hours: 14

Spring

PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
PH 251	SPECIAL RELATIVITY	1
PH 305	MATH METHODS IN PHYSICS	3
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		14
Year 3		
Fall		
PH 351	INTRODUCTION TO MODERN PHYSICS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Additional Science or Engineering Course		3-4
See Requirements tab for approved list.		
PY 101	GENERAL PSYCHOLOGY I	3
Required for Education Concentration		
Humanities, 2nd Fine Art or 2nd Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		15-16
Spring		
PH 301	INTERMEDIATE MECHANICS	3
PH/OPT/AST 300+ level or higher course		3
PY 201	LIFE-SPAN DEVELOPMENT	3
Required for Education Concentration		
CM 113	Intro to Rhetorical Communication	3
History		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Year 4		
Fall		
PH 499	PHYSICS PRACTICUM	3
EH 301	TECHNICAL WRITING	3
PH/OPT/AST 300+ level or higher course		3
PH/OPT/AST 300+ level or higher course		2
2nd History or 3rd Social and Behavioral science		3
See Requirements tab for approved list.		
Term Semester Hours:		14
Spring		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
Term Semester Hours:		13

Fifth Year

Fall

ED 309	CLASSROOM BEHAVIOR MGMT	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHNG SCIENCE MID SEC SCH I	3
Term Semester Hours:		15

Spring

ED 497	HIGH SCHOOL INTERNSHIP	12
Term Semester Hours:		12
Total Semester Hours:		142-143