

COLLEGE OF SCIENCE

Physics, BS Optics Concentration 2022-2023 Catalog | catalog.uah.edu

| Completed | Course Number | Credits | Course Name | Prerequisites, Corequisites and/or Prerequisites with Concurrency | Semester Usuall Offered | | |
|---|-------------------|------------|---|--|----------------------------|--|--|
| Charger Foundations Area I: Freshman Composition 3-6 credits - see attached for more options | | | | | | | |
| | FU 101 | 3 | | - | EA/CD/CU | | |
| | EH 101 EH 102 | 3 | College Writing I | Placement EH 101 or EH 101S | FA/SP/SU FA/SP/SU | | |
| | EH 102 | 3 | College Writing II | | | | |
| | | 3 | Accelerated College Writing | <u>Placement</u> | SP | | |
| | EH 105 | 3 | Honors English Seminar | Honors | FA | | |
| _ | | | Area II: Humanities and Fir | | | | |
| | | 3 | Fine Art | See attached for choices | | | |
| | | 3 | Literature | Completion of Area I; See attached for choices | | | |
| | | 3 | Non-Literature Humanity | See attached for choices | | | |
| | | 3 | Humanities/Fine Arts/Literature | See attached for choices | | | |
| | | | Area III: Mathematics and Sci | | | | |
| | MA 171 MA 1710 | 4 | Mathematics 4 c Calculus A | | FA/SP/SU | | |
| Ш | MA 171 or MA 171S | 4 | Natural Sciences (Lal | Placement or MA 113 or MA 115 | FA/5P/5U | | |
| | CH 121/125 | 3/1 | General Chemistry I + Lab | Placement or CH 101 | FA | | |
| | | | | | SP | | |
| Ц | CH 123/126 | 3/1 | General Chemistry II + Lab | CH 121 | 51 | | |
| Area IV: History and Social & Behavioral Sciences 12 credits | | | | | | | |
| | | 3 | History | See attached for choices | | | |
| | | 3 | Social & Behavioral Science | See attached for choices | | | |
| | | 3 | Social & Behavioral Science | See attached for choices | | | |
| | | 3 | History/Social & Behavioral Science | See attached for choices | | | |
| | | | Area V: Pre-Profe | | | | |
| | | | For Physics Majors | | | | |
| | FYE 101S | 1 | Charger Success - Science | REQUIRED | FA | | |
| | | 3 | Intro to Computer Programming | See attached for choices | | | |
| | MA 172 | 4 | Calculus B | MA 171 | FA/SP/SU | | |
| | MA 201 | 4 | Calculus C | MA 172 | FA/SP/SU | | |
| | MA 238 | 3 | Appl Differential Equations | MA 172, 201 | | | |
| | MA 244 | 3 | Intro to Linear Algebra | MA 120 or 172 | | | |
| | | | Major Requiren | | | | |
| | | | Physics Core 28 | credits | | | |
| | PH 110 | 3 | Frontiers in Science | PH majors and minors only | FA | | |
| | PH 111/114 | 3/1 | General Physics w/ Calculus I + Lab | MA 171 | FA/SP/SU | | |
| | PH 112/115 | 3/1 | General Physics w/ Calculus II + Lab | PH 111/114, MA 172 | FA/SP/SU | | |
| | PH 113/116 | 3/1 | General Physics w/ Calculus III + Lab | PH 112/115, MA 201 | FA/SP/SU | | |
| | PH 251 | 1 | Special Relativity | PH 112, MA 172, prereq w/ conc: PH 113 | SP | | |
| | PH 301 | 3 | Intermediate Mechanics | PH 111 and (PH 305 or MA 238) | SP | | |
| | PH 305 | 3 | Math Methods in Physics | PH 112 | SP | | |
| | PH 351 | 3 | Introduction to Modern Physics | PH 113 and (MA 238 or 244), prereq w/ conc: PH 251 | FA | | |
| | PH 499 | 3 | Physics Practicum | Graduating senior | FA | | |
| | | | Optics Concentration Requi | | | | |
| | OPT 341 | 3 | Geometrical Optics | PH 113, PH 305 and MA 244 w/ conc. | | | |
| | OPT 342 | 3 | Physical Optics | OPT 341 | SP | | |
| | OPT 411 | 3 | Optics Lab | OPT 341 w/ conc. | SP | | |
| | | | Optics Concentration Elective R | equirements 6 credits | | | |
| | | | Choose two PH/OPT 300-leve | · | | | |
| | | | General Elect | ives | | | |
| | Ele | ective cou | rses can be taken from any department and d | o not have to be taken in your major or minor. | | | |
| | | | Total = 120+ credits t | | | | |
| | | | 36 of the 120 credits must be taken | n at 300-level or higher. | | | |



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| | | Charger Foundations Choices | | | | | |
|--|--|---|--|--|--|--|--|
| I. Freshman Composition | Choose 1 | College Writing I & II (EH 101 + 102) Intensive Writing & Studio & Freshman Comp II (EH 101S + 101L & EH 102) Honors English Seminar (EH 105; equivalent to EH 101 & EH 102) Accelerated College Writing (EH 103: equivalent to EH 101 & EH 102) | | | | | |
| II. Fine Arts | Choose 1 | Ancient to Medieval Art (ARH 100) Renaissance to Modern Art (ARH 101) World Art (ARH 103) Introduction to Drawing (ARS 160) Intro to Film Studies (FMA 123) Intro to Music Literature (MU 100) Theatre Appreciation (TH 122) | | | | | |
| II. Humanities (Literature) | Choose 1 | Readings Literature/Culture I (EH 207) Readings Literature/Culture II (EH 208) Honors Literature/Culture I (EH 209) Honors Literature/Culture II (EH 210) Literature Without Borders (EH 241) | Mythology (EH 242) Protest Literature (EH 243) Heroes &/or Monsters (EH 244) Love &/or Romance (EH 245) Speculative Realities (EH 246) | | | | |
| II. Humanities (Non-Literature) | Choose 1 | Ancient to Medieval Art (ARH 100) Renaissance to Modern Art (ARH 101) World Art (ARH 103) Introduction to Drawing (ARS 160) Ancient & Medieval Worlds (AMS 229) Public Speaking (CM 113) Intro to Film Studies (FMA 123) Intro to Music Literature (MU 100) Intro to Philosophy (PHL 101) | Intro to Philosophy (PHL 101) Intro to Ethics (PHL 102) Intro to Logic (PHL 103) Science, Tech & Human Values (PHL 150) Theatre Appreciation (TH 122) Intro to Women's Studies (WGS 200) Foreign Language (WLC 101) International Cinema (WLC 204) | | | | |
| III. Mathematics | \rightarrow | Calculus A (MA 171 or MA 171S) | | | | | |
| III. Natural Sciences (Lab) Sequence | \rightarrow | General Physics w/ Calculus I (PH 111/114) General Physics w/ Calculus II (PH 112/115) | | | | | |
| IV. History | Choose 1 | World History I (HY 103) World History II (HY 104) | United States to 1877 (HY 221) United States Since 1877 (HY 222) | | | | |
| IV. Social & Behavioral Sciences | Choose 2 | World Geography (AES 105) Human Geography (AES 110) Global systems & Cultures (GS 200) Macroeconomics (ECN 142) Microeconomics (ECN 143) American Gov't (PSC 101) Politics & Foreign Govt (PSC 102) | International Relations (PSC 260) General Psychology (PY 101) Life Span Development (PY 201) Intro to Sociology (SOC 100) Analysis of Social Problems (SOC 102) Intro to Criminology (SOC 103) | | | | |
| Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. | | | | | | | |
| Area II Sequence | | | | | | | |
| <u>OR</u> | | | | | | | |
| Area IV Sequence | Area IV Sequence Take a 2 nd History <u>AND</u> Fine Arts or Non-Literature Humanities or Literature Humanities | | | | | | |
| Area V. Choices | | | | | | | |
| Computer Programming | Choose 1 | Intro to Computers & Programming (CS 100) Intro to C Programming (CS 102) Intro to Programming Using JAVA (CS 103) Intro to CS Using Python (CS 104) | | | | | |