

Physics, BS

Optics Concentration

2026-2027 Catalog

Charger Foundations

Area I: Freshman Composition 3-6 credits

Course Number	Credits	Course Name	Semester Usually Offered
EH 101 and 102	6	College Writing I and II	Fall, Spring, Summer
EH 103	3	Accelerated College Writing	Fall, Spring
EH 105	3	Honors English Seminar	Fall

Area II: Humanities and Fine Arts 12 credits

Course Number	Credits	Course Name	Semester Usually Offered
Varies	3	Fine Art	Fall, Spring, Summer
Varies	3	Literature	Fall, Spring, Summer
Varies	3	Non-Literature Humanity	Fall, Spring, Summer
Varies	3	Humanities/Fine Art/Literature	Fall, Spring, Summer

Area III: Mathematics and Sciences 12-14 credits

Mathematics 4-6 credits

Course Number	Credits	Course Name	Semester Usually Offered
MA 171 or MA 171S or MA 150 & 151	4-6	Calculus I or Calculus I with Foundations A & B	Fall, Spring, Summer

Natural Sciences (Lab) 8 credits

Course Number	Credits	Course Name	Semester Usually Offered
CH 121/125	3/1	General Chemistry I + Lab	Fall, Spring, Summer
CH 123/126	3/1	General Chemistry II + Lab	Fall, Spring, Summer

Area IV: History and Social and Behavioral Sciences 12 credits

Course Number	Credits	Course Name	Semester Usually Offered
Varies	3	History	Fall, Spring, Summer
Varies	3	Social & Behavioral Science	Fall, Spring
Varies	3	Social & Behavioral Science	Fall, Spring
Varies	3	History/Social and Behavioral Science	Fall, Spring, Summer

Area V: Pre-Professional

Additional Requirements 18 credits

Course Number	Credits	Course Name	Semester Usually Offered
FYE 101S or HON 101	1	Charger Success - Science or Introduction to Honors Research	Fall
CS 104	3	Intro to CS Using Python	Fall, Spring, Summer
MA 172	4	Calculus II	Fall, Spring, Summer
MA 201	4	Calculus III	Fall, Spring, Summer
MA 238	3	Appl Differential Equations	Fall, Spring, Summer
MA 244	3	Intro to Linear Algebra	Fall, Spring, Summer

Major Requirements

Physics Core 28 credits

Course Number	Credits	Course Name	Semester Usually Offered
PH 110	3	Frontiers in Science	Fall
PH 111/114	3/1	General Physics with Calculus I + Lab	Fall, Spring, Summer
PH 112/115	3/1	General Physics with Calculus II + Lab	Fall, Spring, Summer
PH 113/116	3/1	General Physics with Calculus III + Lab	Fall, Spring, Summer
PH 251	1	Special Relativity	Fall, Spring
PH 301	3	Intermediate Mechanics	Spring
PH 305	3	Math Methods in Physics	Spring

PH 351	3	Intro to Modern Physics	Fall
PH 499	3	Physics Practicum	Fall, Spring

Optics Concentration Requirements 9 credits

Course Number	Credits	Course Name	Semester Usually Offered
OPT 341	3	Geometrical Optics	Fall
OPT 342	3	Physical Optics	Spring
OPT 411	3	Optics Lab	Spring

Optics Concentration Elective Requirements 6 credits

Choose two PH/OPT/AST course at the 300-level or higher not listed above to reach at least 6 credits.

General Electives

Elective courses can be taken from any department and do not have to be taken in your major or minor. Only 4 HPE credits can apply.

Graduation Requirements

- Minimum of 120 credits required for graduation
 - At least 36 credits must be completed at the 300 level or higher
 - All prerequisite courses must be completed with a grade of C- or higher
 - The UAH Catalog is the final authority for all degree requirements
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Charger Foundations Choices

Freshman Composition	Choose 1	College Writing I & II (EH 101 + 102) Accelerated College Writing (EH 103; equivalent to EH 101 & EH 102) Honors English Seminar (EH 105; equivalent to EH 101 & EH 102)
Fine Arts	Choose 1	Ancient & Medieval Art (ARH 100) Renaissance to Modern Art (ARH 101) World Art (ARH 103) Drawing: Foundations (ARS 160) Intro to Film Studies (FMA 1230) Intro to Music Literature (MU 100) Theatre Appreciation (TH 122)
Literature	Choose 1 or 2	Readings in Literature & Culture I (EH 207) Readings in Literature & Culture II (EH 208) 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)
Humanities (Non-Literature)	Choose 1 or 2	Ancient & Medieval Art (ARH 100) Renaissance to Modern Art (ARH 101) World Art (ARH 103) Drawing: Foundations (ARS 160) Intro to Film Studies (FMA 123) Intro to Music Literature (MU 100) Theatre Appreciation (TH 122) Ancient & Medieval Worlds (AMS 229) Public Speaking (CM 113) Intro to Philosophy (PHL 101) Intro to Ethics (PHL 102) Intro to Logic (PHL 103) Tech, Science, & Human Values (PHL 150) Intro to Women's Studies (WGS 200) Foreign Language (WLC 101) International Cinema (WLC 204)
Mathematics	Choose 1	Calculus I with Foundations A & B (MA 150 & MA 151) or Calculus I (MA 171 or MA 171S)
Natural Sciences (Lab) Sequence	Required	General Chemistry I + Lab (CH 121/125) General Chemistry II + Lab (CH 123/126)
History	Choose 1 or 2	World History to 1500 (HY 103) World History since 1500 (HY 104)

		United States to 1877 (HY 221) United States since 1877 (HY 222)
Social & Behavioral Sciences	Choose 2 or 3	World Geography (AES 105) Human Geography (AES 110) Global Systems & Cultures (GS 200) Macroeconomics (ECN 142) Microeconomics (ECN 143) Intro to American Government (PSC 101) Intro to Comparative Politics (PSC 102) Intro to International Relations (PSC 260) General Psychology I (PY 101) Life-Span Development (PY 201) Intro to Sociology (SOC 100) Intro to Criminology (SOC 103) Intro Justice & Equity Studies (JES 200)

Students must take one literature and one history course.
Students must also take either a second literature or history course to complete a sequence.

Optional Physics Concentrations Offered

- Applied & Theoretical Physics
- Astronomy & Astrophysics
- Optics

Consult your Academic Advisor to determine substitute/additional courses to take if you are interested in a degree with a specific concentration.