

Bachelor of Science Degree in Hydrology and Atmospheric Sciences (**HAS major, EHY Track**)
Departmental Advisor Grid ☒ Catalog **AY2021-2022**

FALL		COMMON FRESHMAN CORE		SPRING			
	LANG Req	4	2 nd Semester-level language proficiency requirement		MATH 129	3	Calculus II
	MATH122A MATH 122B	5	Functions for Calculus		CHEM152	4	General Chemistry II
	CHEM151	4	General Chemistry I		GEOS 251	4	Physical Geology
	ENGL 101	3	First-Year Composition I		ENGL 102	3	First-Year Composition II
	Tier1INDV ³	3	<i>Gen Ed Elective</i>		HWRS 195a	1	Careers in HAS (<i>*recommended</i>)
TOTAL 15-19				TOTAL 15			

FALL		SOPHOMORE YEAR		SPRING			
	MATH 223	4	Vector Calculus		C E 218	3	Mechanics of Fluids
	HWRS 350	3	Principles of Hydrology		MATH 254	3	Intro Ordinary Diff Equations
	PHYS 141	4	Introduction to Mechanics		GEOS 304	4	Structural Geol. [OR GEOS302]
	Tier1TRAD ³	3	<i>Gen Ed Elective</i>		Tier1TRAD ³	3	<i>Gen Ed Elective</i>
	Tier1 INDV ³	3	<i>Gen Ed Elective</i>		PHYS 143	2	Intro Optics-Thermodynamics
TOTAL 17				TOTAL 15			

FALL		JUNIOR YEAR		SPRING			
	HWRS 431	4	Hydrogeology		Tech Elec ¹	3	<i>Elective:</i>
	SIE 305	3	Intro Engr. Probability & Statistics		ATMO 436A	3	Fundamentals of the Atmospheric Sciences
	CE 427 ²	3	Comp App Hydraulics [OR other HAS Elective]		Tech Writing & Communication Theme	3	Choose from: ENVS 408, ENVS 415, JOUR 455, JOUR 472, ENGL 313, ENGL 308
	Tier2INDV ³	3	<i>Gen Ed Elective</i>		CE 423	3	Hydrology
	Comp Elec Theme	3	Choose from: HWRS 401, CSC 250, HWRS 428, RNR 403, RNR 417, BE 485		HWRS 413A	3	Field Hydrology (2 cr. in Spring + 1 cr. Summer pre-session)
TOTAL 16				TOTAL 15			

FALL		SENIOR YEAR		SPRING			
	HWRS 443A	3	Risk Assess for Env. Sys		Tier2 Humanities ³	3	<i>Gen Ed Elective</i>
	HWRS 417A	3	Fundamentals of Water Qual.		HWRS 449	3	Statistical Hydrology
	HWRS 498 ²	2	Senior Capstone (OR other HAS Elective)		HWRS 482 ²	3	Appl. Groundwater Modeling [OR other HAS Elective]
	Tier2 ARTS ³	3	<i>Gen Ed Elective:</i>		HWRS 498 ²	2	Senior Capstone 2nd semester
	HWRS 405	3	Vadose Zone Hydrology		Water Policy, Law, or Econ Elective Theme	3	Choose from: GEOG 468 (sp); AREC 479 (sp); POL 481 (fa); RNR 485 (sp); PA 484 (sp)
TOTAL 14				TOTAL 14			

100% Engagement course, notation on transcript

Highlighted Classes avail. at 500 level for students accepted to the Accelerated Master's Program (AMP) in Hydrology. A max of 12 units may fulfill both undergraduate & AMP requirements

Highlighted classes indicate courses that are **possible** to transfer from other academic institutions. A maximum of 64 units may be transferred and applied to a UA BS degree. Check with your advisor to ensure classes will transfer and fulfill degree requirements

¹TECHNICAL ELECTIVE options. Complete 1 course (minimum 3 units) with advisor approval. Tech elective courses may not be prerequisite to or equivalent to any required course. Students who wish to officially emphasize Surface Water, Groundwater, Water Quality, Water Resources, or Atmospheric Science may apply for an undergraduate certificate, see academic advisor for more information **Tech Electives include:**

- **Surface Water** – CE 427, RNR 417, CE 214, CE 323. (**CE 214** and 323 are exceptions to prerequisite/equivalent rule.)
- **Groundwater** – HWRS 482, HWRS 405, GEOS 302, GEOS 304, GEOS Elective, or HWRS 518 for advanced students who meet eligibility requirements.
- **Water Quality** – HWRS 480, CHEM 241a, MIC 205A & L after taking MIC 181R, WSM 468, CHEE/CE476a
- **Water Resources** – POL 481, ENVS 444, ENVS 454, HWRS 520, for advanced students who meet eligibility requirements.
- **Atmospheric Science** – ATMO 469A, ATMO 469B, GEOS 412A, GEOS 479, GEOS 437, GEOS 478, GEOS 483, MATH 313, PHYS 241

Additional electives in these categories may be available **with advisor approval.**

² HAS MAJOR ELECTIVES (Advanced Courses in HAS) – Complete 3 courses: (1) HWRS 482; (2) GEOS 450; (3) **HWRS 498**; (4) CE 427; [5] RNR 403, 417, or 420; (6) ATMO 451B; (7) ATMO 455; (8) ATMO 421 or GEOG 430. Consult **Catalog** and **Schedule of Classes** for semester of offering! The instructor must approve the Senior Capstone topic ≥ semester prior to enrollment; Honors students may complete an approved Senior Honors Thesis in lieu of the Senior Capstone course.

³ INDV/TRAD/ART/HUM courses must meet University general education requirements. ECON 210 is strongly recommended (see Sophomore Year, Spring Semester). One course must be recognized by the university as focusing on non-western culture, race, gender, or ethnicity. TRAD 101 satisfies this requirement.