

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

FALL		COMMON FRESHMAN CORE		SPRING			
<b>LANG Req</b>	4	2 <sup>nd</sup> Semester-level language proficiency requirement		<b>MATH 129</b>	3	Calculus II	
<b>MATH122a&amp; MATH122b</b>	5	Functions for Calculus & First Semester Calculus		<b>CHEM152</b>	4	General Chemistry II	
<b>CHEM151</b>	4	General Chemistry I		<b>PHYS 141</b>	4	Introductory Mechanics	
<b>ENGL 101</b>	3	First-Year Composition I		<b>ENGL 102</b>	3	First-Year Composition II	
				<b>HWRS 195a</b>	1	Careers in HAS (*recommended)	
TOTAL 16				TOTAL 15			
FALL		SOPHOMORE YEAR		SPRING			
<b>MATH 223</b>	4	Vector Calculus		<b>CSC 110 or ISTA 130</b>	4	Introduction to Computer Programming I or Computational Thinking and Doing	
<b>HWRS 350</b>	3	<b>Principles of Hydrology</b>		<b>MATH 254</b>	3	Intro Ordinary Diff Equations	
<b>GEOG 330</b>	3	Intro to Remote Sensing		<b>ATMO 436a</b>	3	Fundamentals of ATMO Sci.	
<b>Tier1TRAD<sup>3</sup></b>	3	<i>Gen. Ed. Elective</i>		<b>Tier1TRAD<sup>3</sup></b>	3	<i>Gen. Ed. Elective</i>	
<b>PHYS 142</b>	3	IntroOptics-Thermodynamics		<b>Tier1INDV<sup>3</sup></b>	3	<i>Gen. Ed. Elective</i>	
TOTAL 16				TOTAL 15-16			
FALL		JUNIOR YEAR		SPRING			
<b>ATMO 441a</b>	3	Dynamic Meteorology I		<b>Tech Elec</b>	3	<i>Elective:</i>	
<b>SIE 305</b>	3	Intro Engr Probability & Statistics		<b>ATMO 441b</b>	3	Dynamic Meteorology II	
<b>GEOG 230 or ATMO 336 or GEOS 342</b>	3	Our Changing Climate or Weather, Climate, and Society or The History of Earth's Climate		<b>Technical Writing &amp; Communication Theme</b>	3	ENVS 408, ENVS 415, JOUR 455, JOUR 472, ENGL 313, ENGL 308	
<b>Tier2INDV<sup>3</sup></b>	3	<i>Gen. Ed. Elective</i>		<b>Tier 2 Art<sup>3</sup></b>	3	<i>Gen. Ed. Elective</i>	
<b>Comp Elec Theme</b>	3	Choose from: HWRS 401, CSC 250, HWRS 428, RNR 403, RNR 417, BE 485		<b>HAS Elec<sup>2</sup></b>	3	<b>Elective</b>	
TOTAL 15				TOTAL 15			
FALL		SENIOR YEAR		SPRING			
<b>ATMO 451a</b>	3	Physical Meteorology I		<b>HWRS 449</b>	3	Statistical Hydrology	
<b>ATMO 474a</b>	3	Weather Analysis and Forecasting I		<b>HWRS 495a</b>	1	Current Topics in Hydrology and Atmospheric Sciences	
<b>HAS Elec<sup>2</sup></b>	3	<b>Elective</b>		<b>ATMO 474b</b>	3	Weather Analysis and Forecasting II	
<b>Tier2 Humanities<sup>3</sup></b>	3	<i>Gen. Ed. Elective</i>		<b>Water, Policy, Law, or Economics Theme</b>	3	Choose from: GEOG 468 (sp); AREC 479 (sp); POL 481 (fa); RNR 485 (sp); PA 484 (sp)	
<b>HWRS 443A</b>	3	Risk Assess for Env. Sys		<b>HAS Elec<sup>2</sup></b>	3	<b>Elective</b>	
				<b>Tier1INDV<sup>3</sup></b>	3	<i>Gen. Ed. Elective</i>	
TOTAL 15				TOTAL 16			

**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.

<sup>1</sup> TECHNICAL 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.**

<sup>2</sup> 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.

<sup>3</sup> 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.