

## Doctoral Plan of Study – Hydrometeorology

<b>UNDERGRADUATE PREREQUISITE COURSES</b> (Required for Admission)			
<input type="checkbox"/> College Physics 1 Intro Mechanics <input type="checkbox"/> College Physics 2 Electricity and Magnetism OR Optics and Heat (a 2-course sequence) <input type="checkbox"/> College Chemistry 1 Inorganic <input type="checkbox"/> College Chemistry 2 Inorganic	<input type="checkbox"/> Calculus 1 <input type="checkbox"/> Calculus 2 <input type="checkbox"/> Vector Calculus <input type="checkbox"/> Intro Differential Equations	<input type="checkbox"/> Statistics for Phys. Sci / Engr or Probability Theory <input type="checkbox"/> Fluid Mechanics/Hydraulics/Aerodynamics	
<b>CORE COURSES--Minimum 12 units</b> (mandatory for all students)			
<input type="checkbox"/> ATMO 541A Dyn Meteorology I	<input type="checkbox"/> ATMO 551A Phys Meteorology I	<input type="checkbox"/> HWRS 519 Fund Surface Hydr	<input type="checkbox"/> HWRS 524 Hydroclimatology
<b>REQUIRED ELECTIVE COURSES--33 units. Complete a minimum 6 units from EACH of the 3 areas listed below.</b>			
Numerical Weather & Climate Prediction (6 units)	Systems Science & Methods (6 units)	Data Sciences (6 units)	
<input type="checkbox"/> ATMO 558 Mesoscale Meteorological Modeling <input type="checkbox"/> ATMO 579 Boundary Layer Meteorology <input type="checkbox"/> ATMO 551B Dynamic Meteorology 2	<input type="checkbox"/> HWRS 528 Fund: Systems Approach Hydrologic Modeling <input type="checkbox"/> ATMO 545 Intro to Data Assimilation <input type="checkbox"/> ATMO 555 Intro Remote Sens Atmo & Hydr	<input type="checkbox"/> ARL 590 Remote Sensing Study Planet Earth <input type="checkbox"/> ATMO 529 Objective Analy9sis Atmo Sciences <input type="checkbox"/> HWRS 513A-B Field Hydr Meth + Anlys (2, 1) <input type="checkbox"/> CE 528 Numerical Methods Hydraulics	
<b>SEMINAR--1 unit</b> (enroll one semester during residency, preferably first year)			
<input type="checkbox"/> <b>HWRS 595A</b> Current Topics in Hydrology & Atmospheric Sciences – Thursdays at 4 pm. Grade is S, P, or K and does not count toward cumulative GPA.			
<b>PROGRAMMING COMPETENCE &amp; PROFESSIONAL DEVELOPMENT</b>			
<input type="checkbox"/> All students must demonstrate competence in statistics and computer programming (e.g. FORTRAN, MatLab, GrADS, NCL), numerical atmospheric models and specialized instrumentation. Participation in laboratory or field work may be a component. Competence may be demonstrated by successful completion of approved courses in these subjects (undergraduate or graduate level).		<input type="checkbox"/> All students must present the results of their research in a formal seminar or presentation at a scientific meeting in the form of an oral or poster presentation. Typically, students present at the HAS annual student research conference, El Día del Agua y la Atmósfera (Spring Semester) or at AGU (December) or AMS (January) meetings.	
<b>Dissertation--Minimum 18 of HWRS/ATMO 920</b>			

**Need details?** → [schedule.arizona.edu](http://schedule.arizona.edu) or [catalog.arizona.edu](http://catalog.arizona.edu) or [has.arizona.edu/graduate-information](http://has.arizona.edu/graduate-information) (see PhD HYDROMET)

### Courses Approved by Advisor on Individual Basis

- HWRS 505 Vadose Zone Hydrology (3 units)
- HWRS 543A Risk Assessment for Environmental Systems (3 units)
- HWRS 630 Advance Catchment Hydrology (3 units)
- ATMO 595B Global Climate Change (3 units)
- ATMO 595C General Circulation Observations and Modeling (3 units)
- BE 585 Remote Sensing Data and Method (3 units)

## ACADEMIC PROGRESS BENCHMARKS

**YEAR 1 Second Sem:** Take Doctoral Qualifying Examination – Major, Minor (if any)

**YEAR 2 End:** Submit Doctoral Plan of Study by the end of 4th semester to allow time for adjustment or revision (e.g. take additional course units if necessary)

**YEAR 2.5 to 3:** Initiate Doctoral Comprehensive Examination Process – 1) Major Written, 2) Minor Written (if any), and 3) Combined Oral in Major and Minor

**YEAR 4 End:** Take Doctoral Final Oral Examination-Dissertation Defense

Refer to the [ATMO Doctoral Degree Handbook](http://has.arizona.edu/doctor-philosophy-atmospheric-sciences) for details, see <http://has.arizona.edu/doctor-philosophy-atmospheric-sciences>.

## DOCTORAL GRADPATH FORMS

Once matriculated into a degree program, **Continuous Enrollment** is required (fall/spring, fall/spring)—see Graduate Catalog for policies. **Summer enrollment** is not required *unless* you complete requirements in the summer. All requirements should be completed within **6 years** (from first course work) to ensure currency of knowledge.

GradPath FAQ, <https://grad.arizona.edu/gsas/gradpath/faq?audience=35>

### Responsible Conduct of Research Statement

All students complete this form. Additionally, an RCR Workshop is required for any student funded by an NSF or NIH grant.

### Doctoral Plan of Study

- List all course work for Major and Minor plus exactly 18 dissertation units
- Submit by end of Year 2/fourth semester in residence

### Comprehensive Exam Committee Appointment

- File after ALL course work has been completed
- List all members of Major and Minor committees

### Announcement of Doctoral Comprehensive Exam

After completion of written exams, submit this form to announce the oral exam (closed exam, not open to the public)

### Results of Comprehensive Exam

- Faculty dissertation director submits e-form after oral exam
- Comp Exam 5-YEAR CLOCK starts: Complete all degree requirements within next 5 years or begin Comprehensive Exam process again

### Prospectus/Proposal Confirmation

First, submit a draft copy of dissertation abstract (does not have to be the final product) to the Program Coordinator for your file

### Doctoral Dissertation Committee Appointment

List all members of Major and Minor, if any, who will participate in final oral exam (dissertation defense). Request Special Member, if any, with Program Coordinator

### Announcement of Final Oral Defense

- Submit at least 10 business days in advance
- List date, time and location of dissertation defense
- List all committee members who will participate.
- Graduate College will announce the exam in the UA Master Calendar because the initial presentation is open to the public.

### Results of Final Oral Defense

- Faculty dissertation director will submit e-form after the exam
- Result will be reported as Pass Without Revision, Pass With Revision, or Fail (one re-take is allowed—see PHD HWRS Program Guide for details)

After making all required revisions (if any) to the dissertation manuscript, you must submit your dissertation to the Graduate College for the ProQuest/UMI digital archive. The Student Academic Services liaison will assist you with this process.

### Transfer Credit

- A maximum of 12 graduate units of course work taken while in a degree program (approved by DGS-H) may be transferred from another university for use in the major Plan of Study
- No more than 12 graduate units taken in a non-degree status may be used

### Graduate College Petition (used for a variety of reasons)

- Petition for a leave of absence (temporarily suspends Continuous Enrollment requirement but the CLOCKS do not stop)
- Petition for extension of time to complete a course  
Petition for extension of time to complete the degree program