

## Doctoral Plan of Study – Atmospheric Sciences (Effective AY2019-2020)

UNDERGRADUATE PREREQUISITE COURSES			
<input type="checkbox"/> College Physics 1 Intro Mechanics	<input type="checkbox"/> Calculus 1	<input type="checkbox"/> Vector Calculus	
<input type="checkbox"/> College Physics 2 Elec/Magn, Optics/Heat, etc.	<input type="checkbox"/> Calculus 2		
ATMO CORE COURSES			
<b>Minimum 12 units</b> (mandatory for all students)			
<input type="checkbox"/> ATMO 541A Dynamic Met. I	<input type="checkbox"/> ATMO 541B Dynamic Met. II	<input type="checkbox"/> ATMO 551A Physical Met. I	<input type="checkbox"/> ATMO 551B Physical Met. II
ADVANCED ELECTIVES: HOME DEPARTMENT Category 1			
<b>Minimum 24 units in Categories 1 &amp; 2</b> (Some courses only offered every other year. See Catalog for details.)			
<input type="checkbox"/> ATMO 524 Hydroclimatology	<input type="checkbox"/> ATMO 558 Mesoscale Model	<input type="checkbox"/> ATMO 579 Boundary Layer	<input type="checkbox"/> ATMO 641 Adv. Atmo & Oceanic
<input type="checkbox"/> ATMO 529 Objective Analysis	<input type="checkbox"/> ATMO 569A Air Poll I: Gases	<input type="checkbox"/> ATMO 580 Tropical Meteor	<input type="checkbox"/> ATMO 656A Atmo Rad. & Rem
<input type="checkbox"/> ATMO 536A Fund. In Atmo	<input type="checkbox"/> ATMO 569B Air Poll II: Aero	<input type="checkbox"/> ATMO 589 Atmo Electricity	<input type="checkbox"/> ATMO 656B Atmo Rad. & Rem
<input type="checkbox"/> ATMO 545 Intro Data Assim	<input type="checkbox"/> ATMO 574A Analys-Forecast I	<input type="checkbox"/> ATMO 595B Global Climate Ch.	<input type="checkbox"/> HWRS 519 Fund. Surface Water
<input type="checkbox"/> ATMO 555 Atmo-Hyd Rem Sens	<input type="checkbox"/> ATMO 574B Analys-Forecast II	<input type="checkbox"/> ATMO 595C GCMs+Obs	<input type="checkbox"/> HWRS 543A Risk Assess Envir
ADVANCED ELECTIVES: OTHER DEPARTMENTS Category 2 (Courses not listed must be pre-approved by the HAS Academic Committee)			
<input type="checkbox"/> CE 523 Hydrology	<input type="checkbox"/> GEOS 567 Inverse Prob Geophys	<input type="checkbox"/> PTYS 537 Physics of the Sun	<input type="checkbox"/> WSM 502 Air+Water: PhysFluids
<input type="checkbox"/> GC 572 Global Biogeochem Cyc	<input type="checkbox"/> GEOS 573 Earth System Mod.	<input type="checkbox"/> PTYS 544 Physics of High Atmos.	<input type="checkbox"/> WSM 560A Watershed Hydr
<input type="checkbox"/> GEOG 530 The Climate System	<input type="checkbox"/> GEOS 578 Global Change	<input type="checkbox"/> PTYS 517 Atmo & Remote Sens	<input type="checkbox"/> WSM 696M MATLAB Envir Data
<input type="checkbox"/> GEOG 539A Intro Dendrochron	<input type="checkbox"/> GEOS 579 Intro Climate Dynam	<input type="checkbox"/> REM 590 Intro Rem Sens	<input type="checkbox"/> WSM 696Q Prac/Appl Hydromet
<input type="checkbox"/> GEOG 547 Global-Reg Climate	<input type="checkbox"/> GEOS 582 Paleoclimatology	<input type="checkbox"/> RNR 527 Earth Chg Carbon Cycle	
SEMINAR			
<b>2 units</b> (one per semester)			
<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.			
DOCTORAL MINOR		DISSERTATION: HWRS 920	
Select a complementary area of study (see Program Guide) to complete the Minor Plan of Study. Contact the Minor department for specific exam and course requirements (typically 12 units but ranges from 9 to 15 units).		<input type="checkbox"/> HWRS 920 Dissertation: <b>Include exactly 18 units</b> total in Plan of Study	
		<input type="checkbox"/> You may need to <u>delete</u> excess 920 units from Plan of Study	
PROGRAMMING COMPETENCE & PROFESSIONAL DEVELOPMENT			
<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.	

**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 ATMO)**

## 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](#) 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