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

## UNDERGRADUATE PREREQUISITE COURSES

- College Physics 1 Intro Mechanics
- College Physics 2 Electricity and Magnetism OR Optics and Heat (a 2-course sequence)
- Calculus 1
- Calculus 2
- Vector Calculus
- Statistics/Probability Theory
- Fluid Mechanics/Hydraulics

## MASTER’S CORE COURSES

Minimum 12 units (mandatory for all students)

- ATMO 541A Dyn Meteorology I
- ATMO 557A Phys Meteorology I
- HWRS 519 Fund Surface Hydr
- HWRS 524 Hydroclimatology

## REQUIRED ELECTIVE COURSES

Complete 6 units from EACH of the 3 areas listed below. If course not available in a particular semester, discuss an alternative course w/advisor!

<table>
<thead>
<tr>
<th>Numerical Weather &amp; Climate Prediction (6 units)</th>
<th>Systems Science &amp; Methods (6 units)</th>
<th>Data Sciences (6 units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATMO 558 Mesoscale Meteorological Modeling</td>
<td>HWRS 528 Fund: Systems Approach Hydrologic Modeling</td>
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<tr>
<td>ATMO 579 Boundary Layer Meteorology</td>
<td>ATMO 545 Intro to Data Assimilation</td>
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<tr>
<td>ATMO 551B Dynamic Meteorology 2</td>
<td>ATMO 555 Intro Remote Sens Atmo &amp; Hydr</td>
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<td></td>
<td>ARL 590 Remote Sensing Study Planet Earth</td>
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<td>ATMO 529 Objective Analysis Atmosphere</td>
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<td></td>
<td>HWRS 513A-B Field Hydr Meth + Anlys (2, 1)</td>
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<td></td>
<td>CE 528 Numerical Methods Hydraulics</td>
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## SEMINAR

1 unit (enroll one semester during residency, preferably first year)

- HWRS 595A Current Topics in Hydrology & Atmospheric Sciences – Thursdays at 4 pm. Grade is S, P, or K and does not count toward cumulative GPA.

## PROGRAMMING COMPETENCE & PROFESSIONAL DEVELOPMENT

- 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).
- 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.

## DISSERTATION

- ATMO or HWRS 920 Dissertation: 18 units (exactly) on Plan of Study

*Need details? ➔ schedule.arizona.edu or catalog.arizona.edu or has.arizona.edu/graduate-information (see PHD HYDROMET)*
## TYPICAL DOCTORAL PROGRAM

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>Fall: Year 1</td>
<td>ATMO 541A</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ATMO 551B</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HWRS 528</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HWRS 595A Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Spring: Year 1</td>
<td>HWRS 519</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HWRS 524</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ATMO 541B*</td>
<td>3</td>
</tr>
<tr>
<td>Fall: Year 2</td>
<td>ATMO 529</td>
<td>3</td>
</tr>
<tr>
<td>Qualifying Exam</td>
<td>REM 590</td>
<td>3</td>
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<tr>
<td></td>
<td>ATMO 545</td>
<td>3</td>
</tr>
<tr>
<td>Spring: Year 2</td>
<td>ATMO or HWRS 910</td>
<td>3</td>
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<tr>
<td></td>
<td>ATMO 579</td>
<td>3</td>
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<tr>
<td><strong>Total Units</strong></td>
<td></td>
<td><strong>34</strong></td>
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</table>

*Required for working at the National Weather Service (NWS)

## ACADEMIC PROGRESS BENCHMARKS

- **Year 1:** x
- **Year 2.5-3:** x
- **Year 4:** x

Refer to the Doctor of Philosophy-Hydrometeorology Handbook for details about Enrollment Requirements, Faculty Committee, Research Topic, etc.

## ARIZONA RESIDENCY

Minimum residence/enrollment requirements: 12 units must be completed at the University of Arizona; the remaining required units must be satisfied by University credit, graduate-level courses, including on-campus courses, courses not offered on the main campus, and approved thesis credit in absentia.

## DOCTORAL EXAMINATIONS

- Qualifying Exams
- Comprehensive Exams
- Final Oral Exam (Dissertation Defense)

## DOCTOR OF PHILOSOPHY GRAD PATH 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.

**REQUIRED FORMS**

- [Login to Student UAccess](#) to complete any form

### 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.

### Transfer Credit
- A maximum of 6 graduate units equivalent to required courses (approved by DGS) may be transferred from another university for the Plan of Study

### Doctoral Plan of Study
- Submit plan of study after second semester in residence (end of 1st year)
- Minimum 33 units as described on page 1 which includes 3 (minimum) thesis units
- You are expected to complete all course work and writing for the master’s thesis within a 2-year period.

### Master’s Committee Appointment
- Contact the HYDROMET graduate coordinator for instructions prior to completing this form

### Master’s Completion Confirmation
- Department will submit this form after you have completed and successfully defended the thesis

### Petition (use for a variety of reasons)
- Petition to take a leave of absence (temporarily suspends continuous enrollment) or extend time to complete a course