# Doctor of Philosophy Plan of Study – Hydrology

**UNDERGRADUATE PREREQUISITE COURSES**

Complete all by the end of Year 1

- Physical Geology
- College Physics 1 Mechanics
- College Physics 2 Other
- College Chemistry 1 Inorganic
- College Chemistry 2 Inorganic
- Calculus 1
- Calculus 2
- Vector Calculus
- Intro Differential Equations
- Fluid Mechanics/Hydraulics
- Statistics for Phys Sci/ Engr or Probability Theory

**CODING:** All graduate students are expected to have or to acquire capability for basic coding/computer programming (e.g. Python, MATLAB, Fortran, C++). Semester courses or short courses offered by various departments and the University Information Technology center are available. No graduate credit is granted for this work.

**MASTER’S CORE COURSES + PRIMARY FACULTY ADVANCED ELECTIVE COURSES**

Complete 21 units (minimum) from Master’s Core and Primary Faculty categories

- HWRS 517A * Water Quality
- HWRS 518 * Subsurface Hydro
- HWRS 519 S Surface Hydro
- HWRS 528 F Wat Res Systems
- HWRS 501 Tools for Data Hand.
- HWRS 503 F Subsurf Fluid Dyn
- HWRS 504 S Num Meth Subsurf
- HWRS 505 F Vadose Zone Hydr
- HWRS 516 F Hydr Transport Proc
- HWRS 524 S Hydroclimatology
- HWRS 532 S Enivr Hydrogeo Lab
- HWRS 535 S Adv Subsurface Hyd
- HWRS 543A F Risk Assessment
- HWRS 549 F Statistical Hydro
- HWRS 573 S Hydr WR Mgmt
- HWRS 580 S Isotope Tracers Hyd
- HWRS 582 S Groundwater Mod
- HWRS 596G F Water–Rock–Micro
- HWRS 630 F Adv Catchment Hyd
- HWRS 642S Anlys Hydr Systems
- HWRS 645 S Stoch Meth Subsurf
- HWRS 655 F Stoch Meth Surface

**FIELD METHODS/FIELD SYNTHESIS**

Complete 3 units total in the same calendar year

- HWRS 513A S Field Methods (2)
- HWRS 513B SUM Field Synthesis (1)
- HWRS (Primary Course) Substitution units (3) in lieu of field course sequence

**OTHER ADVANCED ELECTIVE COURSES**

Complete 12 units from Primary, Other, and Transfer categories

See Doctor of Philosophy HWRS Program Guide for details. All course work, including Transfer, must be approved by the DGS-Hydrology.

**DOCTORAL MINOR**

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).

**DISSERTATION: HWRS 920**

- HWRS 920 Dissertation: Include exactly 18 units total in Plan of Study
- You may need to delete excess 920 units from Plan of Study

**PROFESSIONAL DEVELOPMENT**

- HWRS 595A Current Topics in Hydrology & Atmospheric Sciences, the Weekly Colloquium - All Graduate Students (MS & PHD) must enroll for at least one semester (1-unit maximum per semester) during academic residency but do not include in Plan of Study
- Near end of academic residency, make two (2) presentations of dissertation research at approved regional, national, or international conferences
- Of two (2) required presentations, minimum 1 oral presentation
- Submit email memo with details (see PHD HWRS Program Guide) to DGS-H
ACADEMIC PROGRESS BENCHMARKS + FORMAL EXAMS
See Doctor of Philosophy HWRS Program Guide for details

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

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 except in cases where a financial aid sponsor, visa sponsor, or other entity requires enrollment for the diploma term (August). Otherwise, the diploma terms are spring (May) and fall (December). The PHD degree program has a 10-Year Clock which begins with the earliest coursework.

Login to Student Access to complete required forms

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
• Then submit the Prospectus/Proposal form (department will confirm)

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 (Minor may opt out)
• 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.

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