

# HYDROLOGY (HYDR)

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## **HYDR 404 (s) Special Topics (1-16 credits)**

Credit arranged

## **HYDR 409 Quantitative Hydrogeology (3 credits)**

Joint-listed with HYDR 509

A rigorous introduction to the description of flow in porous media; the basic equations of potential flow theory as they relate to ground water problems, with application to common engineering problems encountered by hydrogeologists and engineers; dimensional analysis, properties assignment, and heterogeneous systems. Additional reading, presentations, and/or written reports of assigned literature required for graduate credit. Typically Offered: Varies.

**Prereqs:** 'C' or higher in either MATH 160 or MATH 170

## **HYDR 412 Environmental Hydrogeology (3 credits)**

Cross-listed with GEOL 413

Joint-listed with HYDR 512

This course provides an examination of hydrogeochemical site characterization to evaluate the transport of water-quality contaminants and the impact of the contaminants on water resources, particularly aquifers. The primary goal is an evaluation of the integration of physical and chemical tools available for determining the current state of contamination and predicting future conditions with changes in the hydrogeologic environment. Additional independent research paper required for graduate credit. Typically Offered: Spring (Odd Years).

**Prereqs:** GEOL 309 Cooperative: open to WSU degree-seeking students.

## **HYDR 496 Hydrogeology Senior Thesis (3 credits)**

Completion of original research and report. Course is taken over two semesters; first semester is graded IP until completion of second semester.

**Prereqs:** GEOL 309 or HYDR 409/HYDR 509 and GEOL 410

## **HYDR 499 (s) Directed Study (1-16 credits)**

Credit arranged

## **HYDR 500 Master's Research and Thesis (1-16 credits)**

Credit arranged

## **HYDR 501 (s) Seminar (1-16 credits)**

Credit arranged.

## **HYDR 502 (s) Directed Study (1-16 credits)**

Credit arranged

## **HYDR 503 (s) Workshop (1-16 credits)**

Credit arranged

## **HYDR 504 (s) Special Topics (1-16 credits)**

Credit arranged

## **HYDR 509 Quantitative Hydrogeology (3 credits)**

Joint-listed with HYDR 409

A rigorous introduction to the description of flow in porous media; the basic equations of potential flow theory as they relate to ground water problems, with application to common engineering problems encountered by hydrogeologists and engineers; dimensional analysis, properties assignment, and heterogeneous systems. Additional reading, presentations, and/or written reports of assigned literature required for graduate credit. Typically Offered: Varies.

## **HYDR 512 Environmental Hydrogeology (3 credits)**

Joint-listed with GEOL 413, HYDR 412

This course provides an examination of hydrogeochemical site characterization to evaluate the transport of water-quality contaminants and the impact of the contaminants on water resources, particularly aquifers. The primary goal is an evaluation of the integration of physical and chemical tools available for determining the current state of contamination and predicting future conditions with changes in the hydrogeologic environment. Additional independent research paper required for graduate credit. Typically Offered: Spring (Odd Years).  
Cooperative: open to WSU degree-seeking students.

## **HYDR 576 Fundamentals of Modeling Hydrogeologic Systems (3 credits)**

Development and application of models representing physical systems, with particular emphasis on ground water flow. Development and solution of the basic equations of potential flow will be covered, along with their assumptions and limitations. Properties assignment, parameter sensitivity, and dimensional analysis will also be discussed. The course will emphasize when modeling is appropriate, how to design a model, and how properties should be selected to achieve meaningful results.  
Cooperative: open to WSU degree-seeking students.

**Prereqs:** MATH 275 or Permission

## **HYDR 598 (s) Internship (1-16 credits)**

Credit arranged

## **HYDR 599 (s) Research (1-16 credits)**

Credit arranged. Research not directly related to a thesis or dissertation.