

HYDROLOGIC SCIENCES, DOCTOR OF PHILOSOPHY

College of Agricultural & Environmental Sciences

Graduate Study

The Hydrologic Sciences Graduate Group offers M.S. and Ph.D. degrees. Hydrologic Sciences integrates numerous and diverse fields of sciences to deepen the understanding of the physical and biogeochemical dynamics of water and water resources below, on, and above the land surface. It considers the interactions between water, the natural environment, agriculture, urban areas, ecosystems, climate, and societal systems, and it investigates water management, regulations, water law, and societal conflicts around water. Students have the ability to take advantage of the breadth of earth, environmental, agricultural, and social sciences and engineering resources on campus that are related to water in the natural and built environment. Students deepen their understanding, advance their critical thinking and analysis skills, and gain in-depth knowledge of innovative, leading hydrologic science tools and techniques to employ for problem-solving.

Specialization

To accommodate the diversity of preparation and interests among students, the program offers five specializations, from which students select one for their Ph.D.: physical hydrology, water policy and management, hydrochemistry, hydrobiology, and earth surface processes.

Preparation

Applicants to the program are expected to have completed or to be completing an undergraduate degree in environmental, physical, chemical, or biological sciences, mathematics, engineering, or related degrees. Undergraduate study must include one year of calculus and one course each in probability/statistics, computer programming, physical geology, and introductory hydrology. Additional undergraduate preparation, expected to be completed before entering the program, depend on the choice of specialization: physical hydrology and earth surface processes require one course each in linear algebra, differential equations, and fluid mechanics, one year of general physics, and two courses of general chemistry. Water policy and management requires one course each in microeconomics and in public policy. Hydrochemistry requires one year each in general biology and general chemistry, and one course in aqueous chemistry. Hydrobiology requires one year each in general biology and general chemistry, and one course in introductory ecology.

Degree Requirements & Program Coordinator

See Hydrologic Sciences (<https://grad.ucdavis.edu/programs/ghys/>).