



## AMERICAN INSTITUTE OF HYDROLOGY EDUCATIONAL CRITERIA

### BASIC REQUIREMENTS

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Completion of a full course of study leading to a bachelor's or higher degree at an accredited college or university with a major in hydrology, physical or natural science or engineering.

The study must have included a minimum of:

- 5 semester hours or 8 quarter hours in Chemistry
- 5 semester hours or 8 quarter hours in Physics
- 5 semester hours or 8 quarter hours in Differential and Integral Calculus
- One Basic Course in surface or groundwater hydrology (3 semester hours or 4 quarter hours' credits)
- 25 semester hours or 37 quarter hours in the specialty areas.

### SPECIALTY REQUIREMENTS

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Completion of 25 semester hours or 37 quarter hours of which at least 10 semester or 15 quarter hours must come from Category I listing of courses and the rest from a combination of Category II and Category III listing of courses. 20 semester hours or 30 quarter hours must be in the third or fourth year or graduate course studies.

#### CATEGORY I

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Courses in hydrology, hydrogeology, or water quality - minimum of 6 semester or 10 quarter hours in Category 1.A, 1.B or 1.C, depending on the area of specialization (surface, groundwater or water quality).

#### CATEGORY II

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Courses in allied subjects in which hydrology, hydrogeology or water quality constitutes more than 10 percent of the course work - minimum of 9 semester or 14 quarter hours. Courses listed in Category I that are not used to satisfy Category I requirements can count toward Category II requirements. Courses such as climatology, fluvial geomorphology, limnology, meteorology, plant-water relationships, soil and water conservation, soil physics, water resource management, well drilling, well logging, wetland ecology or management, and so forth.

#### CATEGORY III

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Supplemental courses - minimum of 6 semester or 9 quarter hours. These courses would include subjects such as economics, geology, geophysics, law, planning, remote sensing, statistics, land and water policy, resource management, water administration, and so forth.

**Note:** The course titles listed are only indicative and **are not all inclusive**. For all courses that contained hydrology material this is not reflected in the title, applicants should provide a course description or syllabus that shows content. In the Category II and III courses there is considerable latitude and the courses below are only for general reference.

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**Category I. A**  
**Titles of Courses in Hydrology**


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Advanced Geohydrology  
Advanced Ground-Water Hydrology  
Advanced Hydraulics  
Advanced Hydraulic Problems  
Advanced Hydrologic Analysis  
Advanced Hydrologic Analysis & Design  
Advanced Hydrologic Laboratory  
Advanced Hydrology  
Advanced Water Chemistry  
Agricultural Hydrology  
Analytical Geohydrology  
Applied Hydraulics  
Applied Hydrology  
Applied Subsurface Hydrology  
Arctic Hydrology  
Arid Zone Hydrology

Deterministic Methods in Hydrology  
Drainage & Irrigation  
Dynamic Hydrology  
Dynamics of Flow Systems of the Earth

Engineering Hydrology

Field Hydrology  
Floods & Droughts  
Flow in Porous Media  
Fluid Flow in Porous Media  
Fluid Mechanics  
Fluvial Hydraulics  
Forest Hydrology  
Free Surface Flows

Geohydrology  
Geohydrology of Drainage Basins  
Ground-Water Hydrology

Hydraulics  
Hydraulics of Open Channel  
Hydraulics of Pipeline  
Hydrochemistry  
Hydrodynamics of Free Surface Flows  
Hydrologic Forecasting  
Hydrologic Investigations  
Hydrologic Measurements  
Hydrologic Models  
Hydrologic Processes & Cybernetics  
Hydrologic Properties of Soils  
Hydrologic Simulation  
Hydrologic Systems & Analysis  
Hydrologic Transport Processes  
Hydrology, I & II  
Hydrology Field Camp  
Hydrology Laboratory  
Hydrology for Engineers  
Hydrology of Lakes & Reservoirs  
Hydrology Seminar  
Hydrometeorologic Observations  
Hydrology, Water Control  
Hydrometeorology  
Hydroscience

Land-Mass Hydrology

Numerical Methods in Hydrology

Open Channel Flow

Physical Hydrology

Range Hydrology  
River Hydrology  
Rural Hydrology

Seepage  
Seminar in Geohydrology  
Seminar in Hydrology  
Simulations Methods in Surface & Subsurface  
Snow Hydrology  
Soil Hydrology  
Soil Water Movement  
Special Topics in Hydraulics & Fluid Mechanics

Special Topics in the Hydrology of Ground Water & Low Flows  
Statistical Methods in Hydrology  
Stochastic Methods in Hydrology  
Stream Analysis  
Subsurface Fluid Dynamics  
Surface Water Dynamics  
Surface & Subsurface Hydrology  
Surface Water Hydrology  
Surface Water Quality & Analysis

Urban Hydrology  
Use of Computers in Hydrology

Water Chemistry  
Water Resources Calculations  
Watershed Hydrology  
Watershed Modeling

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**Category I. B**  
**Titles of Courses in Groundwater Hydrology (Hydrogeology)**


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Advanced Ground Water Geology  
Advances Ground Water Problems  
Advanced Hydrogeology  
Analysis of Ground Water Flow  
Analysis of Ground Water Systems  
Analytical Methods in Ground Water  
Analytical Techniques of Ground Water Flow  
Application of Hydrogeology Concepts  
Applied Hydrogeology  
Appraisal and Development of Ground Water  
Aquifer Mechanics  
Assessment of Ground Water Resources

Case Histories in Hydrogeology  
Chemistry of Ground Water  
Computer Modeling of Hydrogeologic Systems  
Contaminant Hydrogeology

Development of Ground water Resources  
Environmental Hydrologic Tracers

Field Hydrogeology  
Field Methods in Hydrogeology  
Field Methods in Contaminant Hydrogeology  
Fundamental of Well Test Analysis

Geology of Underground Water Ground Water  
Ground Water & Engineering Geology  
Ground Water & Seepage  
Ground Water Chemistry  
Ground Water Contamination  
Ground Water Dating  
Ground Water Development  
Ground Water Exploration and Development  
Ground Water Flow & Drainage Design  
Ground Water Flow Systems  
Ground Water Geology  
Ground Water Hydraulics  
Ground Water Investigations  
Ground Water Management  
Ground Water Pollution  
Ground Water Problems in Mining  
Ground Water Resources Evaluation and Modeling  
Ground Water Resources Management

Hydrogeochemistry Seminar  
Hydrogeochemistry  
Hydrogeologic Mapping  
Hydrogeologic Measurements  
Hydrogeologic Problems  
Hydrogeologic Systems  
Hydrogeology I & II  
Hydrogeology & Human Affairs  
Hydrogeology of Ground Water Pollution & Protection  
Hydrothermal Fluids

Intro to Ground Water  
Intro to Ground-Water Geology  
Laboratory Methods in Hydrogeology

Mathematical Models of Hydrogeologic Systems  
Mathematics of Ground Water Movement  
Mechanics of Flow Through Soils  
Mechanics of Underground Fluids  
Methods of Ground Water Investigations  
Modeling Subsurface Flow Systems  
Monitoring Network Design

Numerical Methods in Hydrogeology  
Numerical Methods in Subsurface Hydrology

Optimal Ground Water Management

Paleohydrogeology  
Physics of Underground Fluids  
Pollution of Ground Water  
Principles of Ground Water  
Principles of Hydrogeology  
Prospecting for Ground Water

Quantitative Determination of Aquifer Performance  
Quantitative Ground Water Hydrology  
Quantitative Methods in Hydrogeology

Regional Ground Water Geology

Sedimentary Aquifers  
Seminar in Ground Water  
Seminar in Hydrogeology  
Solutions to Ground Water Problems  
Statistical Methods in Hydrogeology  
Subsurface Hydrogeologic Methods  
Subsurface Water Quality

Theory of Flow Through Porous Media  
Theory of Ground Water Flow  
Theory of Ground Water Motion/Movement  
Transient Flow of Ground Water  
Theory of Ground Water Motion/Movement  
Transient Flow of Ground Water  
Transient Phenomena in Natural Porous Media

Underground Fluids

Water Well Analysis  
Water Well Design  
Water Wells

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**Category I. C**  
**Titles of Courses in Water Quality**


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Advanced water chemistry  
Analysis and design of Wastewater treatment  
Aquatic chemistry  
Aqueous geochemistry  
Assessing ecological effects of pollution

Biological and chemical processes for wastewater treatment

Chemistry of aquifer systems  
Chemistry and biology of natural waters

Ecology of polluted water  
Environmental water chemistry  
Environmental chemistry  
Environmental health aspects of ground water systems

Geochemistry of aqueous systems  
Geochemistry of natural water  
Geochemistry of pollution  
Geochemistry of river management  
Geochemistry of sediments

Introduction to geochemistry

Land application of wastewater  
Limnology  
Low-temperature geochemistry

Modeling aquatic environments

Sanitary engineering  
Solute transport geochemistry  
Stream ecology

Water pollution biology  
Water pollution control  
Water quality

Water quality analysis  
Water quality control  
Water quality dynamics  
Water quality engineering  
Water quality management

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**Category II. A & B**  
**Hydrology and Hydrogeology**

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Advanced Hydrologic Engineering  
Advanced Mechanics of Fluids  
Advanced Sanitary Engineering  
Advanced Subsurface Fluids Engineering  
Advanced Meteorology  
Applied Environmental Geology  
Applied Physics  
Applied Meteorology  
Applied Environmental Geology  
Climate and Weather  
Conservation of Aquatic Resources  
Drainage & Irrigation Engineering  
Drainage & Irrigation Practice  
Drainage Systems Design  
Drilling Engineering  
Drilling Practice & Well Completion  
Ecology of Polluted Water  
Engineering Geology  
Engineering Hydraulics  
Environmental Geochemistry  
Environmental Geology  
Environmental Health Aspects of Ground Water Systems  
Evapotranspiration  
Fluvial Geomorphology  
Fluid Dynamics  
Flood Control Engineering  
Forest influences  
Fundamental of Geological Engineering  
Geochemistry of Aqueous Systems  
Geochemistry of Natural Water  
Geochemistry of Pollution  
Geography of River Development  
Geological Engineering  
Geological Oceanography  
Geology in Engineering Construction  
Geology of Fluids  
Geology in Engineering Construction  
Geomorphology  
Ground-water Engineering  
Ground-water Protection  
Hydraulic Engineering  
Hydrochemical Systems  
Hydrography  
Hydrologic & Hydraulic Engineering  
Hydrodynamics  
Hydromechanics  
Land Application of Wastewater  
Limnology  
Low-Temperature Geochemistry  
Meteorology (micro, dynamic)  
Microclimatology  
Ocean & Coastal Engineering  
Permafrost  
Petroleum Engineering  
Petroleum Geology  
Petroleum, Natural Gas & Ground Water  
Physical Aspects of Sedimentology  
Physical Geology  
Physical Oceanography  
Physiography  
Physics of Soil Water Movement  
Plant/Water Relationship  
Pollution of Natural Waters  
Public Water Supplies  
Quaternary (Surficial) Geology  
Remote Sensing of the Environment

Water quality investigations  
Water quality measurements  
Water quality for engineers  
Water supply and pollution control  
Water supply and treatment

River & Harbor Engineering  
Road Drainage  
Rural Water Supplies  
Sanitary Engineering  
Sedimentation  
Sediment Transport  
Small Watershed Engineering  
Soil & Water Conservation  
Soil Drainage  
Soil Moisture  
Soil, Water & Air  
Soil Water Dynamics  
Solute Transport Geochemistry  
Stream Ecology  
Stream Pollution  
Thermodynamics  
Urban Water Systems  
Water Analysis  
Water Chemistry Laboratory  
Water Conservation  
Water Microbiology  
Water Pollution Control  
Water Power Engineering  
Water Quality Analysis  
Water Quality Dynamics  
Water Quality in Water Resources Development  
Water Quality Investigations & Control  
Water Quality Measurements  
Water Quality Seminar  
Water Resources  
Water Resources Development  
Water Resources Engineering  
Water Resources Instrumentation  
Water Resources Investigation & Development  
Water Resources Management  
Water Resources Microbiology, Bacteriology  
Water Resources Science and Technology  
Water Analysis & Problems  
Watershed Management  
Water Supply & Pollution Control  
Water Supply & Treatment  
Water Supply & Wastewater Collection  
Water Supply & Wastewater Disposal  
Water Supply & Engineering  
Water Supply Geology  
Water Supply - Water Wells  
Water Utilization  
Waves & Coastal Processes  
Well Completion & Simulation  
Well Drilling  
Well Logging

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**Category II. C**  
**Allied Courses in Water Quality**

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Algae physiology  
Analytical chemistry  
Aquatic entomology  
Aquatic plants  
Biology of algae  
Ecology of animal plankton  
Ecology of fish  
Freshwater algae  
General microbiology  
Ichthyology  
Microbial ecology  
Organic chemistry  
Production biology of fishery environments  
Wetland Ecology

Water supply and wastewater collection  
Water supply and wastewater disposal  
Water Well Design  
Water Wells  
Well Test Analysis

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**Category III. A, B & C**  
**Titles of Supplemental Courses**

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Advanced Geology  
Advanced Soil Science  
Agricultural Engineering  
Air-photo Interpretation  
Analysis & Design of Water Res. Systems  
Aquatic Ecology for Nonbiologists  
Aquatic Environments  
Bioclimatology  
Biology of Water & Water Treat. Res.  
Biostratigraphy  
Chemical Properties of Soils  
Chemistry of Soil & Water Systems  
Civil Engineering Technology  
Conservation of Natural Resources  
Earth Science  
Earth & Physical Sciences  
Ecological Dimensions of Environ. Impact  
Ecology  
Economics of Water Supply  
Engineering Properties of Soils  
Environmental Conservation  
Environmental Economics  
Environmental Health  
Environmental Health Engineering  
Environmental Impact Analysis  
Environmental Impact Statement  
Environmental law, Toxic Subs. & Conservation  
Environmental Legislation  
Environmental Management  
Environmental Planning  
Environmental Pollution Control  
Environmental Quality Management  
Environmental Radiation  
Environmental Toxicology  
Exploration Geology  
Exploration Geophysics  
Field Geology  
General Geography  
General Geology  
Geochemistry  
Geology for Engineers  
Geophysical Exploration  
Geophysical Prospecting  
Geophysics  
Glacial Geology  
Government & Natural Resources  
Ground Water Law  
Heat Transfer  
Hydrotechnical Structures  
Hydropower Engineering  
Intro to Statistical Methods  
Intro to Water Resources  
Land & Water Use Policy  
Land Use Controls  
Lithology  
Man, Chemicals & Environment  
Maps & Airphotos  
Marine Environments/Ecology  
Marine Engineering  
Marine Geology  
Mining Geology  
Modeling & Analysis of Environ. Systems  
Natural Resources Economics  
Natural Resources Law  
Natural Resources Management  
Natural Resources Planning  
Numerical Methods in Geoscience

