



AMERICAN INSTITUTE OF HYDROLOGY EDUCATIONAL CRITERIA

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BASIC REQUIREMENTS

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

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

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

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

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.

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

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
 Hydrosience

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

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

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

Category I. C
Titles of Courses in Water Quality

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
Water quality investigations
Water quality measurements
Water quality for engineers
Water supply and pollution control
Water supply and treatment
Water supply and wastewater collection
Water supply and wastewater disposal
Water Well Design
Water Wells
Well Test Analysis

Category II. A & B
Hydrology and Hydrogeology

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
 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

Category II. C
Allied Courses in Water Quality

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

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

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

Science & Government
Seminar in River Basin Planning
Seminar in Water Resources
Sewage and Sewage Treatment
Soil Mechanics
Soil Physics/Chemistry
Soil Rock Behavior
Soil Science
Soils & Environmental Pollution
Soils & Land Use
Soils Mapping & Evaluation
Stratigraphy
Stream Sanitation

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

Structural Geology
Subsurface Exploration
Stream Sanitation
Structural Geology
Subsurface Exploration
Surface & Subsurface Geology

Wastewater Treatment
Water Law
Water Resources Economics
Water Resources Institutions & Policies
Water Resources Planning

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

Optimization & Simulation of Water Resources Systems

Petrography
Petrology
Petroleum
Photogeology
Physical Climatology
Physics of Soil & Water
Principles of Electric Exploration
Protection of Natural Resources
Public Health Engineering

Radiochemical Laboratory
Regional Geology
Reservoir Engineering
Reservoir Operation

Water Resources Systems
Simulations
Water Quality & Water Resources Development
Water Rights Law
Watershed Instrumentation
Watershed Problems/Operations
Water, Society & the Environment
Water Studies Seminar
Waterways Engineering
Waterways & Ports

