What Can I Do With A Major In…

Water Resources?

Compiled by the staff at the SUNY Oneonta Career Development Center

Introduction

Programs in Water Resource Science focuses on the scientific study of the occurrence, circulation, distribution, chemical/physical properties, environmental interaction of surface/sub-surface waters including ground water and are dedicated to providing ways of maintaining an adequate supply of water, managing its use, and protecting its quality. The Earth Science Department at The College at Oneonta offers a program that trains students to understand and solve the many water problems that we face. Students obtain instruction in areas including but not limited to Geo Physics, Thermodynamics, Fluid Mechanics, Chemical Physics, Geo morphology, Mathematical Modeling, Hydrologic analysis, Continental Water Processes, Water Conservation, Quality Management, Waste Treatment, Global Water Balance and Environmental Science.

Functional Skill Set for Water Resources Majors

- Mapping
- Traveling
- Graphing
- Sketching
- Observing
- Hydrological Studies
- Planning
- Plan programs to prevent floods and erosion.
- Use computer to analyze data.
- Conduct geological surveys; measure and map the earth’s surface and subsurface layers.
- Trace the flow of water and oil through rock.
- Transferable skills and personal traits: interpersonal skills, team player, creative thinker, independent worker, interested in getting advanced training and degrees, analytical and research skills, written communication skills, perseverance, stamina, ability to visualize.
- Aptitude for accuracy and detail.
- Ability to conduct and clearly explain scientific research.
- Thorough knowledge of geological principles and mathematics.
Related Career Titles for Water Resources Majors:

- Administration
- Agronomist
- Anthropologist
- Botanist
- Civil Engineer
- Environmental Scientist
- Ecologist
- Economist
- Forester
- Geologist
- Glaciologist
- Historian
- Hydrologist
- Hydro-Geologist
- Lawyer
- Limnologists
- Micro Biologist
- Political Scientist
- Physicist
- Sociologist
- Soil Scientist

Some Organizations that Typically Employ Water Resources Majors:

- Engineering Firms
- Hydrological Consulting Firms
- Manufacturing Firms
- The United Nations
- UNESCO
- The World Bank
- The Asian Development Bank
- National Oceanographic & Atmospheric Administration
- Departments of Energy
- U.S. Fish and Wildlife Reserve
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Geological Survey- Water Resources Division
- Bureau of Reclamation
- National Park Service
- Bureau of Land Management
- Soil Conservation Service
- Great Lakes Survey
- Directorates of the National Science Foundation
- Health, Human Services, Education and Commerce
- Environmental Consulting Firms
- Municipal Water Supply Agencies
Start a Strategic Plan

- Volunteer to do research on Water Conservation and Usage in your community
- Talk to a professor or advisor in your major about independent study opportunities
- Learn to work independently & as part of a team
- Join & take on leadership roles in major related clubs and organizations
- Participate in an internship or part time job related to Water Resources.
- Get a great deal of lab experience.
- Participate in research
- Develop public speaking skills in order to present findings.
- Develop excellent writing skills in order to prepare reports and proposals.
- Develop leadership and organizational skills in order to manage projects.
- Consider a law degree for work with land-use laws and legal matters.
- Learn about policy issues at both the federal and state government levels.
- Become familiar with environmental regulations and government permit issues.
- Obtain experience in mapping and surveying. Develop skills with measuring equipment as well as laboratory equipment and processes.
- Obtain a business background to help in managing projects and assessing economic costs and benefits.
- Join groups directed toward improvement of natural resources, environment, and pollution control.
- Join the student branch of the professional organization(s) related to interest area(s).
- Develop excellent computer skills.
- Learn a foreign language since work is often done in other countries.
- Develop physical stamina to work and do research in remote areas under various conditions.
- Excellent verbal and written communication skills are essential. The ability to market your skills and write proposals is necessary to maintain steady work. The ability to obtain grants may be necessary to continue a project.
- Majoring in two subject areas can increase employability, for example, geology and physics for geophysics, geology and foreign language for overseas assignments.
- Obtain certification/licensing for public school teaching.
- Obtain Ph.D. for higher education teaching and/or advance research and administrative positions.
- Become familiar with Geographic Information Systems (GIS)
- Learn special techniques through fieldwork.
Professional Organizations and Associations for Water Resources Majors:

Stockholm International Water Institute
www.siwi.org

Water Environment Federation
www.wef.org

American Water Resources Association
www.awra.org

The International Association of Hydrological Sciences
www.cig.ensmp.fr/~iahs

American Society of Liminology and Oceanography
www.aslo.org

International Association of Hydraulic Engineering and Research
www.iahr.org

International Association of Environmental Hydrology
www.hydroweb.com

American Geophysical Union Hydrology Section
hydrology.agu.org

American Institute of Hydrology
www.aihydro.org

Geological Society of America
http://www.geosociety.org

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# ENVIRONMENTAL STUDIES/SCIENCE

## What can I do with this major?

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<th>AREAS</th>
<th>EMPLOYERS</th>
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<td><strong>SOIL SCIENCE</strong>&lt;br&gt;Soil and Water Conservation&lt;br&gt;Land Use Planning&lt;br&gt;Waste Disposal&lt;br&gt;Environmental Compliance&lt;br&gt;Reclamation of Contaminated Lands&lt;br&gt;Landfill Operation and Monitoring&lt;br&gt;Agrichemical Management&lt;br&gt;Fertilizer Technology&lt;br&gt;Agricultural Production&lt;br&gt;Research&lt;br&gt;Education</td>
<td>Government agencies including:&lt;br&gt;US Environmental Protection Agency&lt;br&gt;Natural Resource Conservation Services&lt;br&gt;USDA Forest Service&lt;br&gt;US Department of Health and Human Services&lt;br&gt;State farm bureaus&lt;br&gt;Environmental research laboratories&lt;br&gt;Agricultural or environmental consultant firms&lt;br&gt;Privately owned farms and ranches&lt;br&gt;Universities</td>
<td>Maintain knowledge of current environmental issues including policy, conservation, and industry trends.&lt;br&gt;Develop acute observational skills.&lt;br&gt;Stay current on technology used in natural resource management including software, geographical information systems, and global positioning systems.&lt;br&gt;Seek related experience through co-ops, internships, or part-time jobs in area of interest.&lt;br&gt;Gain extensive laboratory and research experience to prepare for research positions.&lt;br&gt;Participate in related clubs, organizations, and soil judging teams to build contacts and cultivate academic interests.&lt;br&gt;Learn about certification programs offered by the Soil Science Society of America including soil science and agronomy.&lt;br&gt;Become familiar with the federal job application procedure for government employment.&lt;br&gt;Obtain Ph.D. for optimal research and university teaching careers.</td>
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<td><strong>SOLID WASTE MANAGEMENT</strong>&lt;br&gt;Chemistry&lt;br&gt;Engineering&lt;br&gt;Hydrology&lt;br&gt;Logistics&lt;br&gt;Planning&lt;br&gt;Recycling&lt;br&gt;Transportation&lt;br&gt;Compliance</td>
<td>Federal, state, and local government&lt;br&gt;Private waste management firms&lt;br&gt;Consulting firms&lt;br&gt;Nonprofit organizations</td>
<td>Develop strong communication skills, both written and oral.&lt;br&gt;Develop decision-making and problem-solving skills, diplomacy, and the ability to work under pressure.&lt;br&gt;Gain familiarity with current technologies, regulations, and statutes.&lt;br&gt;Join community groups or service organizations that focus on environmental awareness; attend public meetings about waste management.&lt;br&gt;Become flexible and learn to look at issues from various perspectives.</td>
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<td>AREAS</td>
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<tr>
<td><strong>HAZARDOUS WASTE MANAGEMENT</strong></td>
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<tr>
<td>Hydrogeology</td>
<td>Federal, state, and local government</td>
<td>Consider a double major in hard science or engineering.</td>
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<td>Quality Control</td>
<td>Private companies that generate hazardous</td>
<td>Attend public meetings on hazardous waste issues.</td>
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<td>Risk Assessment</td>
<td>waste in production</td>
<td>Gain laboratory experience and computer expertise.</td>
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<td>Environmental Engineering</td>
<td>Hazardous waste management firms</td>
<td>Complete an internship in a government office or regulatory agency.</td>
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<td>Public and Environmental Health</td>
<td>Consulting firms</td>
<td>Gain experience with technical writing.</td>
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<td>Industrial Hygiene</td>
<td>Nonprofit organizations</td>
<td>Get involved with local chapters of citizen watch groups.</td>
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<td>Biology</td>
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<td>Become familiar with Superfund and its activities.</td>
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<td>Chemistry</td>
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<td>Geology</td>
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<tr>
<td>Chemical Engineering</td>
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<td>Planning</td>
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<td>Compliance</td>
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<td><strong>AIR QUALITY MANAGEMENT</strong></td>
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<tr>
<td>Engineering</td>
<td>Federal, state, and local government</td>
<td>Stay up-to-date with federal regulations and both industry and regional</td>
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<tr>
<td>Planning</td>
<td>Private industry</td>
<td>standards.</td>
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<tr>
<td>Analytical Chemistry</td>
<td>Consulting firms</td>
<td>Additional training in economics and policy is desirable.</td>
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<tr>
<td>Environmental Quality Analysis</td>
<td>Nonprofit organizations</td>
<td>Develop strong oral communication and technical writing skills.</td>
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<td>Meteorology</td>
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<td>Learn to work well under pressure and develop negotiation skills.</td>
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<td>Risk Assessment</td>
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<td>Seek volunteer or paid positions within area environmental groups.</td>
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<td>Safety and Health Management</td>
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<td>Toxicology</td>
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<td>Project Development</td>
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<td>Compliance</td>
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<tr>
<td><strong>WATER QUALITY MANAGEMENT</strong></td>
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<tr>
<td>Aquatic Ecology</td>
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<td>Develop a strong chemistry background by taking additional courses.</td>
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<td>Aquatic Toxicology</td>
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<td>Obtain laboratory skills by assisting faculty with research projects.</td>
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<tr>
<td>Biology</td>
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<td>Maintain current knowledge of industry trends and regulations.</td>
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<td>Civil/Environmental Engineering</td>
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<td>Develop interpersonal, oral communication, and technical writing skills.</td>
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<td>Hydrogeology and Hydrology</td>
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<td>Seek an advanced degree in policy for increased marketability.</td>
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<tr>
<td>Drinking Water Supply and Treatment</td>
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<td>Learn about certification programs offered by the American Institute of</td>
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<td>Waste Water Treatment</td>
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<td>Hydrology.</td>
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<td>Groundwater Protection</td>
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<td>Learn to use the tools and software associated with watershed modeling.</td>
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<td>Surface Water Management</td>
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<td>Estuary Management</td>
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<td>Wetlands Protection</td>
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<td>Compliance</td>
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<td>Industrial Engineering</td>
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<td>AREAS</td>
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<tr>
<td><strong>LAND AND WATER CONSERVATION</strong></td>
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<tr>
<td>Biology</td>
<td>Federal, state, and local government</td>
<td>Gain a solid background in the basic sciences while obtaining a broad-based education.</td>
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<tr>
<td>Ecology</td>
<td>Indian nations</td>
<td>Obtain legal, real estate, and financial skills through coursework, internships or part-time jobs.</td>
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<tr>
<td>Planning</td>
<td>Utilities and timber companies</td>
<td>Volunteer through the Student Conservation Association (SCA) and hold an office.</td>
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<tr>
<td>Law</td>
<td>Consulting firms</td>
<td>Keep up with new funding sources.</td>
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<td>Geographic Information Systems</td>
<td>Nonprofit organizations</td>
<td>Consider law school for careers as counsel to environmental organizations.</td>
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<td>Preserve Management</td>
<td>Land trust organizations such as The Nature Conservancy or Trust for Public Land</td>
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<td>Natural Resource Management</td>
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<td>Soil Conservation</td>
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<td>Land Acquisition</td>
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<tr>
<td><strong>FISHERY AND WILDLIFE MANAGEMENT</strong></td>
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<tr>
<td>Aquaculture</td>
<td>Federal, state, and local government</td>
<td>Develop a broad scientific education.</td>
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<tr>
<td>Botany</td>
<td>Marine sport fisheries</td>
<td>Obtain skills in areas such as planning, administration, communications, and negotiation through coursework, internships, or part-time jobs.</td>
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<tr>
<td>Data Management</td>
<td>Utility companies</td>
<td>Get experience and skills in computers, statistics and computer modeling.</td>
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<tr>
<td>Biology</td>
<td>Developers</td>
<td>Join the Peace Corps as a segue way into federal government positions.</td>
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<tr>
<td>Hatchery Management</td>
<td>Timber companies</td>
<td>Learn about the federal job application process.</td>
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<tr>
<td>Marine Biology</td>
<td>Wildlife ranges</td>
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<tr>
<td>Ecology</td>
<td>Scientific foundations</td>
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<tr>
<td>Education</td>
<td>Zoological parks</td>
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<tr>
<td>Research</td>
<td>Hunting and fishing clubs</td>
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<tr>
<td>Planning</td>
<td>Consulting firms</td>
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<td></td>
<td>Nonprofit organizations</td>
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<tr>
<td><strong>PARKS AND OUTDOOR RECREATION</strong></td>
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<tr>
<td>Administration and Management</td>
<td>National Park Service</td>
<td>Develop a broad-based education that will develop both technical and interpersonal skills.</td>
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<tr>
<td>Law Enforcement</td>
<td>Federal agencies</td>
<td>Gain expertise in additional areas such as communications, writing, fund-raising, negotiation, and computer applications.</td>
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<tr>
<td>Recreation Planning</td>
<td>State, county, or city parks</td>
<td>Obtain working knowledge of a foreign language such as Spanish.</td>
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<tr>
<td>Natural Resource Management</td>
<td>Resorts</td>
<td>Learn to work well with and communicate with all types of people.</td>
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<tr>
<td>Research</td>
<td>Marinas</td>
<td>Participate in travel and recreation programs.</td>
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<tr>
<td>Site Operations and Maintenance</td>
<td>Privately owned facilities</td>
<td>Join related organizations and seek leadership roles to gain experience planning trips and other programs.</td>
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<td>Ecotourism</td>
<td>Nonprofit organizations</td>
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<tr>
<td>Direct Mail Merchandising</td>
<td>Tourism agencies</td>
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</tbody>
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### AREAS

#### FORESTRY
- Consulting
- Entomology
- Hydrology
- Natural Resource Management
- Planning
- Research
- International Forestry
- Urban Forestry

#### ENVIRONMENTAL EDUCATION AND COMMUNICATION
- Teaching
- Journalism
- Tourism
- Law Regulation
- Compliance
- Political Action/Lobbying

#### PLANNING
- Air Quality
- Aviation
- Building/Zoning
- Land-Use
- Consulting
- Recreation
- Transportation
- Water Resources

### EMPLOYERS

#### Federal, state, and local government
- Consulting firms
- Timber companies
- Nonprofit organizations

#### Two-year community colleges
- Four-year institutions
- Corporations
- Consulting firms
- Media
- Nonprofit organizations
- Political Action Committees

### STRATEGIES

#### FORESTRY
- Obtain skills with computers, statistics, and accounting through coursework, internships or part-time jobs.
- Develop good communication and public relations skills.
- Get a minor or double major in a technical area (soil science, wildlife or surveying) or in an arts and science area (business, economics, political science or computer science).

#### ENVIRONMENTAL EDUCATION AND COMMUNICATION
- Master public speaking skills.
- Learn certification/licensure requirements for teaching public K-12 schools.
- Develop creative hands-on strategies for teaching/learning.
- Publish articles in newsletters or newspapers.
- Learn environmental laws and regulations.
- Join professional associations and environmental groups as ways to network.
- Become active in environmental political organizations.

#### PLANNING
- Get on planning boards, commissions, and committees.
- Have a planning specialty (transportation, water resources, air quality, etc.).
- Master communication, mediation and writing skills.
- Network in the community and get to know "who's who" in your specialty area.
- Develop a strong scientific or technical background.
- Diversify your knowledge base. For example, in areas of law, economics, politics, historical preservation, or architecture.
### AREAS

<table>
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<tr>
<th>ENVIRONMENTAL LAW</th>
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<tr>
<td>Law firms</td>
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<tr>
<td>Large corporations</td>
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<tr>
<td>Federal and State government agencies including:</td>
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<tr>
<td>US Environmental Protection Agency</td>
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<tr>
<td>Department of Justice</td>
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<tr>
<td>Attorney General Office</td>
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<tr>
<td>Nonprofit organizations, e.g. Green Action and Natural Resources Defense Council</td>
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### EMPLOYERS

- Law firms
- Large corporations
- Federal and State government agencies including:
  - US Environmental Protection Agency
  - Department of Justice
  - Attorney General Office
- Nonprofit organizations, e.g. Green Action and Natural Resources Defense Council

### STRATEGIES

- Earn a law degree. Prepare for law school by maintaining a high g.p.a. and studying for the LSAT.
- Build strong recommendations from faculty.
- Work a part-time or summer job in a law firm.
- Develop strong written and oral communication skills.
- Participate in pre-law honor societies, debate teams, or moot court.

### GENERAL INFORMATION

- Environmental studies and environmental science differ from each other in the amount of science course work needed.
- Environmental studies provides a broad base of hard sciences as well as liberal arts or social science coursework.
- Environmental science incorporates hard sciences and environmental sciences.
- Choice depends upon career focus, for example, administration or policy-making versus technical areas or research.
- Combine liberal arts skills with analytical skills to increase employability. Formally, obtain a double major or minor in one of these areas. Informally, obtain these skills through internships, co-ops, volunteer work, summer jobs, or independent research projects.
- Become familiar with current environmental laws and regulations. Stay up-to-date with changing environmental legislation.
- Join related professional associations; read related literature and journals to keep up with new developments.
- Attend seminars, conferences and workshops sponsored by professional associations or public interest groups.
- Network and get to know people who are working in area of interest.
- Research agencies/organizations of interest before applying for a position.
- Learn local, state and federal government job application procedures.
- Obtain graduate degree for job security/advancement.