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US Army Corps of Engineers
Construction Engineering Research Laboratory

USACERL Technical Report N-91/25
May 1991

# Professional Training for TRADOC Environmental and Natural Resource Professionals, Volume II: Source Listings

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The prevention of pollution and environmental degradation is vital to maintain effective and realistic training areas for Training and Doctrine Command (TRADOC) activities. This report analyzes the training needs of environmental professionals in the TRADOC work force, outlines a model training program to fill those needs, and evaluates the feasibility of creating such a program. Volume I of this report specifies: (1) the body of environmental professionals to be trained, by background, experience, and responsibilities, (2) the training needs of the work force, and the categories of training to be accomplished under a broad training program, and (3) the conditions and operational constraints that will bear upon a successful environmental training program. Volume II lists available education sources.

This conceptual outline is the basis for several recommendations:

1. The program presented here should be refined into a final curriculum for individuals and installations.

2. Personnel retention incentives should be explored and developed, including the refinement of an Army environmental professional career path, and a formal system for receiving academic credit while accomplishing training.

3. This model program should be pursued in cooperation with other Army Major Commands and other Department of Defense services to achieve maximum cost effectiveness and economies of scale.

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## FOREWORD

This research project was conducted for Headquarters, Training and Doctrine Command (HQTRADOC), Environmental and Natural Resources Branch, under Intra-Army Order (IAO) No. EFC9R127, dated 22 November 1988, "Survey of TRADOC's Environmental Training Needs." Ms. Linda McFarlane was the HQTRADOC Technical Monitor.

The work was performed by the Modeling and Simulation Team of the Environmental Division (EN) of the U.S. Army Construction Engineering Research Laboratory (USACERL). The USACERL principal investigator was Mr. John Fittipaldi. The USACERL associate investigator was Ms. Nancy S. Natoli. Special acknowledgement is given to Mr. Philip Prisco, who initiated the concept for this study. Dr. John C. Nemeth is Director of the Environmental Science and Technology Laboratory of the Georgia Tech Research Institute in Atlanta, GA. Edward W. Novak is Acting Chief, USACERL-EN. The USACERL technical editor was Mr. William J. Wolfe, Information Management Office.

COL Everett R. Thomas is Commander and Director of USACERL, and Dr. L.R. Shaffer Technical Director

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## 1 SOURCES OF TRAINING—GOVERNMENT

### USEPA Training Sources

**U.S. ENVIRONMENTAL PROTECTION AGENCY**
**HAZARDOUS MATERIALS INCIDENT RESPONSE TRAINING PROGRAM**
**CINCINNATI, OHIO**
**(513)569-7537**

| Course Title | Length (Days) |
|---|---|
| Personnel Protection and Safety | 5 |
| Hazardous Material Treatment Technologies | 4 |
| Air Surveillance for Hazardous Materials | 5 |
| Hazardous Materials Incident Response Operations | 5 |
| Risk Assessment Guidance for Superfund | 5 |
| Introduction to Groundwater Investigations | 3 |
| Safety and Health Compliance for Managers | 4 |
| Sampling for Hazardous Materials | 3 |
| Hazardous Materials Eight Hour Refresher | 1 |
| Radiation Safety at Superfund Sites | 5 |
| Emergency Response to Hazardous Material Incidents | 5 |
| Advanced Air Sampling for Hazardous Materials | 5 |
| Removal Cost Management System | 2 |

**U.S. ENVIRONMENTAL PROTECTION AGENCY INSTITUTE**
**WASHINGTON, D.C.**
**(202)475-6678**

## SCIENCE AND TECHNOLOGY - AIR AND RADIATION

| Course Title | Length |
|---|---|
| Air Management Division Lecture Series | 1-2 Hours |
| Air Pollution Dispersion Models - Application | 4 1/2 Days |
| Air Pollution Dispersion Models - Fundamental Concepts | 4 1/2 Days |
| Air Pollution Microscopy | 4 1/2 Days |
| Air Toxics | 2 Hours |
| Air Toxics - An Introduction | 3 1/2 Days |
| Air Toxics Workshops | 2 Days |
| Analytical Methods for Air Quality Standards | 5 Days |
| Atmospheric Sampling | 4 1/2 Days |
| Combustion Evaluation | 4 1/2 Days |
| Control Measures for CO, $O_3$, and $NO_x$ | 3 Days |
| Control of Gaseous Emissions | 4 Days |
| Control of Particulate Emissions | 4 Days |
| Environmental Radon | 1 1/2 Days |
| Fugitive VOC Leak Detection | 2 Days |
| Hazardous Waste Calculations Workshop | 2 1/2 Days |
| Hazardous Waste Incineration | 4 Days |
| Motor Vehicle Emissions Control - Antitampering and Misfueling | 3 Days |
| Motor Vehicle Emissions Control - Diagnosis and Repair | 5 Days |
| Motor Vehicle Emissions Control - Quality Assurance for I/M Programs | 3 Days |
| Principles and Practice of Air Pollution Control | 3 1/2 Days |
| Quality Assurance for Air Pollution Measurement Systems | 4 Days |
| Radiation and Radon | 2 Hours |
| Site-Specific Source Monitoring and Evaluation for Air Toxics | 4 1/2 Days |
| Sources and Control of Volatile Organic Air Pollutants | 4 Days |
| Source Receptor Modeling Workshop | 3 Days |
| Source Sampling and Analysis of Gaseous Pollutants | 4 Days |
| Source Sampling for Particulate Pollutants | 4 1/2 Days |
| Statistical Analysis and Interpretation of Air Toxics Monitoring Data | 3 Days |
| Statistical Evaluation Methods for Air Pollution Data | 4 1/2 Days |

## SCIENCE AND TECHNOLOGY - CROSS-MEDIA

| Course Title | Length |
|---|---|
| Acid Rain: An Overview | 2 Hours |
| Applied Statistics | 1 Day |
| Basic Environmental Toxicology | 75 mins./week for 15 weeks |
| Biotechnology Seminars | 1 Day |
| Chemodynamics | 1 Day |
| Compliance Strategy for Underground Storage Tanks | 2 Days |
| Environmental Data Bases - An Introduction | 1/2 Day |
| EPA - University of Cincinnati Seminars on the Environment | 1-2 Hours |
| Epidemiology | Semester-long Course |
| Expert Systems | 32 Hrs. (1 full day & eight 3-Hour Sessions |
| Field Instrumentation for Determination of Volatile Organic Chemicals in the Environment | 2 Days |
| Human Exposure Seminars | 2 Years (once a month) |
| Information Exchange Seminar (USGS-EPA) | 1 2 Hours |
| Mechanisms of Carcinogens (Genetic Toxicology) | 1 Hr./Week for 7 Weeks |
| Science Seminar Program | 1 Hr./Month |
| Statistics for Managers | 8 Hours |

## SCIENCE AND TECHNOLOGY - HAZARDOUS MATERIALS AND INCIDENT RESPONSE

| Course Title | Length |
|---|---|
| Advanced Supervision of Asbestos Abatement Projects (Annual Update Course) | 2 Days |
| Air Surveillance for Hazardous Materials | 5 Days |
| Asbestos Management Planner | 2 Days |
| Hazardous Materials Contingency Planning | 4 1/2 Days |
| Hazardous Materials Incident Response Operations | 5 Days |
| Hazardous Materials Response for First Responders | 3-5 Days |
| Hazardous Materials Response Planning and Operations Course | 1 Day |

## SCIENCE AND TECHNOLOGY - HAZARDOUS MATERIALS AND INCIDENT RESPONSE (cont.)

| Course Title | Length |
|---|---|
| Incident Mitigation and Treatment Methods | 4 Days |
| Inspecting Buildings for Asbestos-Containing Materials | 2 Days |
| Pesticide Misuse Residue Analysis | 3 Days |
| Sampling for Hazardous Materials | 3 Days |

## SCIENCE AND TECHNOLOGY - QUALITY ASSURANCE / QUALITY CONTROL

| Course Title | Length |
|---|---|
| Analytical Quality Control | 5 Days |
| Data Quality Objectives | 1 Day |
| General Quality Assurance Considerations for Ambient Air Monitoring | 4 Days |
| Motor Vehicle Emissions Control - Quality Assurance for I/M Programs | 3 Days |
| Orientation to Quality Assurance Management | 1 Day |
| Quality Assurance for Air Pollution Measurement Systems | 4 Days |
| Quality Assurance for Source Emission Measurements | 4 1/2 Days |
| Quality Assurance, Quality Control, and Chain of Custody - An Introduction | 1 Day |

## SCIENCE AND TECHNOLOGY - RISK

| Course Title | Length |
|---|---|
| Environmental Risk Assessment | 4 Days |
| Integrated Risk Information System (IRIS) | 2 1/2 Hrs. - 1 Day |
| 1986 Risk Assessment Guidelines Core Briefing | 1 Hour |
| 1986 Risk Assessment Guidelines Manager's Seminar | 2 Days |
| Risk Assessment in Superfund | 2 Days |
| Risk and Decision-Making | 2 Days |
| Risky Detections | 1 Day |

## SCIENCE AND TECHNOLOGY - SOLID AND HAZARDOUS WASTE

| Course Title | Length |
|---|---|
| Activated Sludge Process Control | 3 Days |
| Alternative Treatment Technologies for Superfund Waste Sites | 2 Days |
| Bioremediation of Hazardous Waste Sites | Varies |
| CERCLA Orientation | 4 Days |
| CERCLIS Enforcement Overview | 1/2 Day |
| Corrective Action: Technologies and Alternatives | 2 Days |
| Customized CERCLIS Reporting | 2 Days |
| Environmental Remote Sensing | 4 Hours |
| Geophysical Techniques for Finding Buried Waste: Techniques and Basic Theory | 3 Hours |
| Geophysics for Hazardous Site Investigations | 2 Days |
| Hazard Ranking System | 2 Days |
| Hazardous Materials Cleanup Technologies and Their Application at Superfund Sites | 2 Days |
| Hazardous Waste Calculations | 2 1/2 Days |
| Hazardous Waste Incineration | 4 Days |
| Hazardous Waste Landfill Design | 2 Days |
| Hazardous Waste Management | 2 1/2 Days |
| Hazardous Waste Minimization Methods and Procedures | Varies |
| Hazardous Waste Site Sampling | 5 Days |
| Land Disposal Restriction Program Implementation | Varies |
| OSC/RPM Basic Skills Training | 4 1/2 Days |
| Preliminary Assessment/Site Investigations (PA/SI) | 3 Days |
| RCRA/CERCLA Treatment Alternatives to Hazardous Waste Landfills | 2 Days |
| RCRA Facility Assessment | 2 1/2 Days |
| RCRA Groundwater Monitoring: Use of the TEGD and COG | 3 1/2 Days |
| RCRA Orientation Training for Permitting/Enforcement Personnel | 2 Days |
| Remedial Design Schedule Management - An Introduction | 1 Day |
| Remedial Investigation/Feasibility Study (RI/FS) Workshop | 3 Days |
| SARA Title III Information Management Workshops | 2 Days |
| Skills Development in Negotiation of CERCLA/RCRA Disputes | 3 Days |
| Solvent Waste Reduction Alternatives | 2 Days |
| Superfund Public Health Evaluation | 2 Days |

## SCIENCE AND TECHNOLOGY - WATER AND GROUNDWATER

| Course Title | Length |
|---|---|
| ADA Basic Groundwater Course | 3 Days |
| Analytical Quality Control | 5 Days |
| Assessment and Management of Drinking Water Contamination | 3 Days |
| Basic Groundwater Concepts | 3 Days |
| Giardiasis - Waterborne | 1-2 Days |
| Groundwater Geochemistry - An Introduction | 3 Days |
| Groundwater Investigations - An Introduction | 3 Days |
| Groundwater Management Modeling | 1-2 Hours |
| Groundwater Modeling for Managers | 1 Day |
| Groundwater Orientation and Groundwater Protection Strategy | 2 1/2 Hours |
| Hydrogeology - An Introduction | 8 Hours |
| Organics | 1 Day |
| Principles of Groundwater | 3 Days |
| RCRA Groundwater Monitoring: Use of the TEGD and COG | 3 1/2 Days |
| Transport and Fate of Contaminants in the Subsurface | 2 Days |
| Water Management Division Lecture Series | 1-2 Hours |
| Wetland Ecology from an EPA Perspective | 2 Hours |
| Wetlands - An Introduction | 1 Day |

## LEGAL, REGULATORY, AND ENFORCEMENT

| Course Title | Length |
|---|---|
| Administrative Hearings/Trials | 1 Day |
| Advanced Inspection Techniques | 3 Days |
| Air Pollution Field Enforcement | 3 1/2 Days |
| Alternative Dispute Resolution Techniques | 1 Day |
| Annual Hazardous Waste Law and Management Symposium | 2 Days |
| Baseline Source Inspection Techniques | 3 Days |
| Basic Inspector Training Course | 3 Days |
| Compliance Monitoring | 2 Days |
| Criminal Enforcement | 1 Day |
| Drafting Effective Regulations | 2 Days |

## EGAL, REGULATORY, AND ENFORCEMENT (cont.)

| Course Title | Length |
|---|---|
| Dun and Bradstreet Seminar | 1 Day |
| Effective Permit Writing Workshop | 3 Days |
| Environmental Law - An Introduction | 1 Day |
| EPA Trial Advocacy Institute | 5 Days |
| Ethics and Conflict of Interest | 2 1/2 -3 Hours |
| Expert Witness Seminar | 1 Day |
| Federal Register | 4 Hrs./Topic |
| Freedom of Information Act Training | 2 Hrs.-2 Days |
| Incinerator Permitting | 2 Days |
| Negotiation Skills for Attorneys | 2 Days |
| New Sources Review/Prevention of Significant Deterioration Permitting Regulations for the Construction of New Sources and Modifications of Sources of Air Pollution | 2 Days |
| Nonpublic Investigations Pursuant to Subpoena or Similar Process or Demand | 4 Hours |
| OWPE Corrective Action Order Workshop | 3 Days |
| Potentially Responsible Parties (PRP) Search Workshop | 2 Days |
| RCRA Facilities Investigation (RFI) Guidance Training | 4 Days |
| RCRA Inspector Training | 3 1/2 Days |
| RCRA Orientation Training for Permitting/Enforcement Personnel | 2 Days |
| Regulation Development in EPA | 2 Days |
| Regional Enforcement Seminar | 2 Days |
| Skills Development in Negotiation of CERCLA/RCRA Disputes | 3 Days |
| Superfund Enforcement Case Settlement Analysis System | 1 Day |

## HEALTH AND SAFETY

| Course Title | Length |
|---|---|
| Basic Respiratory Protection Training | 4-8 Hours |
| Cardio-Pulmonary Resuscitation (CPR) | 3-4 Hours |
| Disaster Response Training | 1 Day |
| Earthquake Preparedness Briefing | 1 Hour |
| Emergency First Aid | 1 Day |
| First Aid and CPR Training | 4 Hours |

## HEALTH AND SAFETY (cont.)

| Course Title | Length |
|---|---|
| Hazard Communication | 1 Day |
| Health and Safety Orientation | 1-2 Hours |
| Initial Health and Safety Certification Training | 3 Days |
| Inspection Procedures and Safety | 2 Days |
| Laboratory Safety Training | 1 Day |
| Motor Vehicle Safety/Defensive Driving Training | 1 Day |
| Multimedia First Aid | 1 Day |
| Personnel Protection and Safety | 5 Days |
| Recertification Health and Safety Training | 1 Day |
| Refresher Respiratory Protection Training | 1-2 Hours |
| Response Safety Decision-Making | 4 Days |
| Safety in the Field | 1 Day |
| Safety Orientation for New Employees | 1 1/2 Hours |
| Safety Refresher Training Course | 1 Day |
| Self-Contained Breathing Apparatus (SCBA) Training | 1-2 Hours |
| Superfund Workshop for Managers | 1 Day |
| Workshop for Workers at Superfund Sites | 40 Hours |

## COMMUNICATIONS

| Course Title | Length |
|---|---|
| Advocacy/Oral Presentation Seminar | 2 2-Hr. Sessions |
| Be a Better Writer | 3 Days |
| Citizen Participation by Objectives | 2 1/2 Days |
| Clear Business Writing | 2 Days |
| Community Relations in Superfund: Concepts and Skills | 2 Days |
| Congressional/State Liaison Workshop | 1 Hour |
| Effective Briefing and Presentation Skills | 1-3 Days |
| Effective Public Relations | 1 Day |
| Effective Writing for Professionals | 3 Days |
| Environmental Movies and Broadcasts | 8 Hours |
| EPA's External Communications: Dealing Effectively with Outside Constituencies | 1 Day |
| Human Resources/Affirmative Action Needs Assessment Workshops: Communicating Across Gender, Race, and Culture in the Workplace | 1 Day |
| The Human Side of Congressional Affairs | 3 Hours |
| Leading Meetings | 2 Days |
| The Manager and Supervisor as Editor | 2 Days |
| Media Relations Workshop | 1 Hour |
| Negotiation Skills | 2 Days |
| Personally and Professionally Speaking | 1-3 Hours |
| Proofreading: Your Role as Writer/Editor | 1/2 Day |
| Public Involvement Training | 2 Days |
| Publishing and Presenting Technical Articles and Material | 2 Hours |
| Report Planning and Review Workshop | 2 Days |
| Report Writing | 24-32 Hours |
| Speechcraft | Eight 1-Hr. Sessions |
| Systematic Development of Informed Consent | 3 1/2 Days |
| Talking with the Press | 1 Day |
| Technical Writing | 12-24 Hours |
| Technical Writing for Engineers, Scientists, and Technicians | 3 Days |
| The Three P's of Briefing: Presentation, Polish, and Persuasion (Level I) | 3 Days |
| The Three P's of Briefing: The Inner Game (Level II) | 2 Days |
| Writing Effective Letters | 2 Days |
| Writing Press Releases | 1/2 Day |

## SELF-INSTRUCTION, CORRESPONDENCE, SLIDE-TAPE COURSES

### SCIENCE AND TECHNOLOGY - AIR AND RADIATION

| Course Title | Length |
|---|---|
| Air Pollution Control Orientation Course (3rd Edition) | 30 Hours |
| Air Pollution Control Systems for Selected Industries | 40 Hours |
| Ambient Air Monitoring - An Introduction (2nd Edition) | 50 Hours |
| Baghouse Plan Review | 20 Hours |
| Basic Air Pollution Meteorology | 25 Hours |
| Boiler Operation - An Introduction | 20 Hours |
| Controlling VOC Emissions from Leaking Process Equipment | 20 Hours |
| Diagnosing Vegetation Injury Caused by Air Pollution | 30 Hours |
| Dispersion Modeling - An Introduction | 35 Hours |
| Effective Stack Height/Plume Rise | 10 Hours |
| Electrostatic Precipitator Plan Review | 20 Hours |
| Fundamentals of Effective Permit Drafting and Analysis | 40 Hours |
| General Quality Assurance Considerations for Ambient Air Monitoring | 30 Hours |
| Hazardous Waste Calculations | 30 Hours |
| Measuring the Emission of Organic Compounds to the Atmosphere | 30 Hours |
| New Source Performance Standards: Surface Coating Operations | 2 1/2 Hours |
| Problem Workbook for Control of Gaseous and Particulate Emissions | 50 Hours |
| Quality Assurance for Source Emission Measurements | 35 Hours |
| Reference and Automated Equivalent Measurement Methods for Ambient Air Monitoring | 30 Hours |
| Site Selection for Monitoring of Photochemical Pollutants and CO in Ambient Air | 35 Hours |
| Site Selection for Monitoring of $SO_2$ and TSP in Ambient Air | 35 Hours |
| Source Receptor Modeling - An Introduction | 30 Hours |
| Source Sampling Programs for Programmable Calculators - EPA Reference Methods 2 through 5 | 15 Hours |
| Transmissometer Systems - Operation and Maintenance | 30 Hours |
| Wet Scrubber Plan Review | 40 Hours |

## SCIENCE AND TECHNOLOGY - CROSS-MEDIA

| Course Title | Length |
|---|---|
| Environmental Statistics - An introduction | 70 Hours |

## SCIENCE AND TECHNOLOGY - QUALITY ASSURANCE/QUALITY CONTROL

| Course Title | Length |
|---|---|
| Chain-of-Custody Procedures for Samples and Data | 1 Day |

## SCIENCE AND TECHNOLOGY - SOLID AND HAZARDOUS WASTES

| Course Title | Length |
|---|---|
| Construction of RCRA Groundwater Monitoring Wells | 12 Minutes |

## SCIENCE AND TECHNOLOGY - WATER AND GROUNDWATER

| Course Title | Length |
|---|---|
| Construction of RCRA Groundwater Monitoring Wells | 12 Minutes |
| Field Techniques for Characterization of Groundwater Hydrologic Environments | 12 Hours |
| Modeling To Determine the Aquifer Area Contributing Water to Production Wells - Recharge Area Modeling Concepts | 5 Hours |
| Operation of Wastewater Treatment Plants | 2 1-Hr. Sessions/mth. for 6 mths. |

## LEGAL, REGULATORY, AND ENFORCEMENT

| Course Title | Length |
|---|---|
| Baseline Source Inspection Techniques - An Introduction | 88 Hours |
| Controlling VOC Emissions from Leaking Process Equipment | 20 Hours |
| Inspection Procedures for Organic Solvent Metal Cleaning (Degreasing) Operations | 20 Hours |
| Laboratory Compliance with RCRA | 22 Minutes |
| Overview of PSD Regulations | 15 Hours |
| Project Planning and Management of Geohydrologic Investigations | 5 Hours |

## OSHA TRAINING INSTITUTE
## DES PLAINES, ILLINOIS
## (312)297-4810

| Course Title | Length (Days) |
|---|---|
| Initial Compliance Course for Safety Officers | 14 |
| Safety Hazard Recognition for Industrial Hygienists | 9 |
| Initial Compliance Course for Industrial Hygienists | 14 |
| Introduction to Industrial Hygiene for Safety Personnel | 9 |
| Introduction to Industrial Hygiene for Safety Personnel | 5 |
| Inspection Techniques and Legal Aspects | 9 |
| Introduction to OSHA for Non-Technical Personnel | 4 |
| Basic On-Site Consultative Training | 9 |
| Analytical Laboratory Orientation for State Consultants | 2 |
| Effective Written Communication | 4 |
| Construction Standards | 9 |
| Hazardous Materials | 9 |
| Hazardous Materials | 5 |
| Accident Investigation | 7 |
| Basic Electrical Principles | 4 |
| Machinery and Machine Guarding Standards | 9 |
| Machinery and Machine Guarding Standards | 5 |
| Cranes and Materials Handling for Construction | 4 |
| Maritime Standards | 9 |
| Fire Protection and Life Safety | 9 |
| Fire Protection and Life Safety | 5 |
| Cranes and Materials Handling for General Industry | 4 |
| Industrial Noise | 9 |
| Principles of Industrial Ventilation | 9 |
| Respiratory Protection | 9 |
| Respiratory Protection | 5 |
| Industrial Toxicology | 9 |
| Laboratory Safety and Health | 7 |

## OSHA TRAINING INSTITUTE (cont.)

| Course Title | Length (Days) |
|---|---|
| Principles of Ergonomics | 7 |
| Principles of Ergonomics | 5 |
| Confined Space Entry | 4 |
| Recognition, Evaluation and Control of Ionizing Radiation | 7 |
| Recognition, Evaluation and Control of Asbestos | 7 |
| Recognition, Evaluation and Control of Asbestos | 5 |
| Workplace Back Injuries | 4 |
| Indoor Air Quality | 4 |
| Biohazards | 4 |
| Safety and Health for Oil and Gas Well Operations | 4 |
| Excavation, Trenching and Soil Mechanics | 4 |
| Tunneling and Underground Operations | 4 |
| Concrete, Forms and Shoring | 7 |
| Power Press Guarding | 7 |
| OSHA Technical Update - Safety | 4 |
| Safety and Health for Grain Handling Operations | 4 |
| Safety and Health in Sawmills | 4 |
| Principles of Scaffolding | 4 |
| Electrical Standards | 9 |
| Electrical Standards | 5 |
| Applied Spray Finishing and Coating Principles | 4 |
| Applied Welding Principles | 4 |
| OSHA Technical Update - Health | 4 |
| Health Hazards in the Construction Industry for Safety Personnel | 4 |
| Advanced Toxicology: Risk Assessment of Industrial Chemicals | 7 |
| Industrial Hygiene Chemistry | 4 |
| Safety and Health in the Chemical Industry | 4 |
| Hazardous Waste Site Inspection and Emergency Response | 6 |
| Occupational Health Hazard Recognition for Physicians | 3 |

## OSHA TRAINING INSTITUTE (cont.)

| Course Title | Length (Days) |
|---|---|
| Safety Update for OSHA Managers | 5 |
| Health Update for OSHA Managers | 5 |
| Basic Instructor Course in Occupational Safety and Health Standards for the Construction Industry | 5 |
| A Guide to Voluntary Compliance in Safety and Health | 5 |
| Update for Construction Industry Outreach Trainers | 4 |
| Update for Voluntary Compliance Outreach Trainers | 4 |
| OSHA Guide to Voluntary Compliance in the Health Area | 5 |
| Collateral Duty Course for Other Federal Agencies | 5 |
| Occupational Safety and Health Course for Other Federal Agencies | 10 |
| Introduction to the OSHA Computerized Information System and Electronic Mail | 4 |
| Advanced OSHA Computerized Information System and Electronic Mail | 4 |

**U.S. ARMY CORPS OF ENGINEERS**
**HUNTSVILLE DIVISION**
**PROSPECT PROGRAM**
**HUNTSVILLE, ALABAMA**
**(205)722-5821**

| Course Title | Length |
|---|---|
| Ecological Resources: Identification, Analysis and Evaluation | 40 Hours |
| Environmental Engineering of Local Flood Protection Projects | 36 Hours |
| Environmental Impact Assessment of Projects | 40 Hours |
| Environmental Laws and Regulations | 40 Hours |
| Environmental Quality Planning | 40 Hours |
| Ground Water Hydrology | 36 Hours |
| Ground Water Quality | 36 Hours |
| Inspection of Facilities for OSHA Compliance | 40 Hours |
| Planning, Organizing, Writing and Editing EISs and EAs | 24 Hours |
| Policy Implementation for Natural Resource Managers | 36 Hours |
| Safety and Health for Hazardous Waste Sites | 40 Hours |
| Risk Assessment Guidance for SuperFund | 40 Hours |
| Hazardous Materials Treatment Technology | 32 Hours |
| Air Surveillance for Hazardous Materials | 40 Hours |
| Introduction to Groundwater Investigations | 24 Hours |
| Hazardous / Toxic Waste Overview | 16 Hours |
| Environmental Laws / Regulations: Hazardous / Toxic Waste Projects | 32 Hours |
| Sampling for Hazardous Materials | 24 Hours |

## U.S. ARMY LOGISTICS MANAGEMENT COLLEGE
## FORT LEE, VIRGINIA

| Course Title | Length (~~Hours~~) |
|---|---|
| Basic Environmental Coordinators' Course | 2 Weeks |
| Defense Hazardous Materials / Waste Handling Course | 1 Week |
| Defense Hazardous Property Disposal Course | 8 Class Days |
| Defense Hazardous Waste Workshop | 3 Days |
| Environmental Coordinator's Seminar | 4 Days |
| Executive Environmental and Hazardous Material Seminar | 4 - 8 Hours |
| Executive Environmental and Hazardous Material Course | 3 1/2 Days |
| Managers' Environmental Course | 4 Class Days |
| National Environmental Policy Act Implementation Course | 1 Week |

# 2 SOURCES OF TRAINING—ACADEMIC AND COMMERCIAL

## Academic Sources

### TRAINING PROGRAMS IN ENVIRONMENTAL SCIENCE, ENGINEERING, AND HEALTH AND SAFETY

**GEORGIA TECH RESEARCH INSTITUTE**
**ENVIRONMENTAL SCIENCE AND TECHNOLOGY LABORATORY**
**Courses Presented by ESTL since 1984**

| Number of Offerings | Course Title | Persons Trained |
|---|---|---|
| | **1989** | |
| 8 | Advanced Supervision of Asbestos Abatement | 406 |
| 1 | Applied Ergonomics | 60 |
| 2 | Asbestos Abatement Projects in the Roofing Industry | 100 |
| 1 | Confined Space Entry Procedures | 62 |
| 1 | Construction Safety Week | 89 |
| 6 | Designing Asbestos Response Actions | 200 |
| 3 | Designing Asbestos Response Actions: Update | 53 |
| 3 | Executive Summary on Asbestos in Buildings | 64 |
| 1 | Food Waste Processing | 182 |
| 7 | Hazardous Material Control and Emergency Response | 200 |
| 1 | Hazardous Material for Healthcare Facility | 48 |
| 4 | Inspecting Buildings for Asbestos Containing Materials | 307 |
| 6 | Inspector/Management Planner Update | 344 |
| 2 | Lead Based Paint Abatement | 102 |
| 2 | Leaking Underground Storage Tanks: Corrective Action Alternatives | 150 |
| 4 | Leaking Underground Storage Tank Workshop | 273 |
| 4 | Managing Asbestos in Buildings | 214 |
| 2 | OSHA Injury & Illness Recordkeeping | 156 |
| 1 | Principles & Practice of Industrial Hygiene | 39 |
| 1 | Radon: An Awareness Seminar | 20 |
| 4 | Respiratory Protection for the Asbestos Industry | 135 |
| 2 | Respiratory Protection for the General Industry | 57 |
| 6 | SARA Title III | 340 |
| 7 | Supervision of Asbestos Abatement Projects: Course and Workshop | 639 |
| 2 | Supervision of Asbestos Abatement Projects in Industrial Settings | 74 |
| 3 | Transmission Electron Microscopy | 22 |
| 4 | Transmission Electron Microscopy: One Week | 18 |
| 1 | Transmission Electron Microscopy Accreditation Seminar | 38 |
| 1 | Worker's Compensation Claims Management | 95 |
| **89** | **Total programs for the year and total persons trained** | **4487** |

**Listing is through November 10, 1989**

| Number of Offerings | Course Title | Persons Trained |
|---|---|---|
| | **1988** | |
| 8 | Advanced Supervision of Asbestos Abatement | 514 |
| 1 | Applied Ergonomics | 46 |
| 1 | Asbestos Respirator Course | 32 |
| 2 | Asbestos Roofing | 129 |
| 1 | Contractor Liability | 34 |
| 1 | Crane Safety | 39 |
| 3 | Designing Asbestos Response Actions | 103 |
| 1 | Electrical Safety | 24 |
| 6 | Executive Summary | 371 |
| 1 | Hazard Communication | 41 |
| 1 | Hazard Communication for Construction | 42 |
| 9 | Hazardous Material Control & Emergency Response | 269 |
| 1 | Indoor Air Quality Symposium | 52 |
| 8 | Inspecting Buildings for ACM | 609 |
| 1 | Lab Safety Management | 61 |
| 1 | Lead Based Paint Abatement | 123 |
| 1 | Lead Based Paint; Issues & Guidelines | 41 |
| 1 | Lead Based Paint Regulation, Detection, & Abatement | 28 |
| 1 | Leaking Underground Storage Tanks Conference & Exhibition, Washington, DC | 200 |
| 2 | Leaking Underground Storage Tanks Corrective Action Alternatives | 126 |
| 3 | Leaking Underground Storage Tanks Workshop | 141 |
| 1 | Machine Vision Workshop | 41 |
| 8 | Managing Asbestos in Buildings | 541 |
| 4 | OSHA Injury and Illness | 361 |
| 1 | OSHA Update Formaldehyde | 43 |
| 4 | Radon Awareness | 178 |
| 1 | Record Keeping Requirements for Construction | 24 |
| 1 | Safety Workshop for Meat & Poultry | 42 |
| 1 | SARA Title III | 57 |
| 11 | Supervision of Asbestos Abatement Projects | 967 |
| 1 | Supervision of Asbestos Abatement Projects for Industrial Settings | 61 |
| 4 | Transmission Electron Microscopy | 32 |
| 1 | Workers Compensation | 34 |
| 2 | Trenching Safety | 92 |
| 1 | Workshop on Indoor Air Sampling/Analysis | 96 |
| 1 | LBP Exhibitors | 10 |
| 1 | Food Waste Processing Conference | 180 |
| 1 | AHERA Inspector Update | 91 |
| 1 | AHERA Management Planner Update | 90 |
| 100 | **Total programs for the year and total persons trained** | **6317** |

| Number of Offerings | Course Title | Persons Trained |
|---|---|---|
| | **1987** | |
| 1 | Improving Your Technical Writing | 19 |
| 1 | Introduction to Machine Vision | 20 |
| 6 | Advanced Supervision of Asbestos | 486 |
| 1 | Operations and Maintenance Planning | 39 |
| 17 | Supervision of Asbestos Abatement Projects | 1445 |
| 1 | Building Survey/Hazard Assessment | 45 |
| 1 | Asbestos Air Monitoring | 13 |
| 1 | Training for Field Evaluators - EPA Public Buildings Study | 24 |
| 4 | Executive Summary on Asbestos in Buildings | 380 |
| 2 | Hazardous Waste Workshops | 80 |
| 6 | Hazardous Material Control and Emergency Response | 102 |
| 1 | Asbestos Management Seminar | 58 |
| 3 | Asbestos Abatement Workshop | 72 |
| 2 | Lead Based Paint | 114 |
| 3 | Leaking Underground Storage Tanks | 111 |
| 1 | Hazardous Waste Incineration Today | 52 |
| | Hazardous Waste Series: | |
| 1 | -Site Safety | 14 |
| 1 | -Transporters | 14 |
| 2 | -Generators | 28 |
| 3 | Applied Safety Considerations for Supervisors and Managers | 60 |
| 4 | Inspecting Buildings for ACM | 348 |
| 4 | Managing Asbestos in Buildings | 348 |
| 1 | Radon | 33 |
| 1 | Clearance Testing for Asbestos Containing Materials | 114 |
| 1 | Third Generation Inspecting | 55 |
| 1 | Principles & Practices of Respirators Program | 28 |
| 1 | Asbestos Brake Conference | 55 |
| 1 | Asbestos Roofing | 110 |
| 1 | International Food Waste Processing | 137 |
| 1 | Indoor Air Quality | 87 |
| 1 | OSHA Injury & Illness | 172 |
| 1 | Wetlands Conference | 54 |
| 1 | Nibs Specification | 64 |
| 77 | **Total programs for the year and total persons trained** | **4781** |

| Number of Offerings | Course Title | Persons Trained |
|---|---|---|
| | **1986** | |
| 17 | Supervision of Asbestos Abatement Projects | 1369 |
| 1 | Interim Procedures & Practices for Asbestos Abatement Projects | 56 |
| 2 | Audiometric Technician Training & Certification | 33 |
| 1 | Audiometric Technician Refresher & Recertification | 9 |
| 3 | Hazardous Material Control & Emergency Response | 67 |
| 7 | Excavation Trenching and Safety Course | 311 |
| 6 | Asbestos Abatement Workshop | 103 |
| 1 | Applied Safety Considerations for Supervisors and Managers | 103 |
| 1 | Workshop on Sampling & Analysis Techniques | 66 |
| 1 | Indoor Air Quality Symposium | 94 |
| 5 | Hazardous Waste Generators Workshop | 125 |
| | Hazardous Waste Course Series: | |
| 3 | -Site Safety | 91 |
| 3 | -Transporters | 100 |
| 3 | -Generators | 135 |
| 4 | Asbestos Awareness Seminar | 140 |
| 1 | Scaffolds, Swing Stages, & Manlifts | 11 |
| 1 | Confined Space Entry Procedures | 29 |
| 1 | Management Procedures for Detection of Control of Asbestos-Containing Materials | 50 |
| 1 | Effective Blasting and Explosives | 30 |
| 1 | 3rd Annual Conference & Exhibition on the Environment, Health, and Safety | 319 |
| 1 | Innovative Techniques & Recent Developments in Health and Safety | 21 |
| 1 | Operations & Maintenance Planning | 32 |
| 1 | Industrial Toxicology | 35 |
| 1 | Building Survey/Hazard Assessment | 69 |
| 1 | Asbestos Abatement Project Monitoring | 8 |
| 1 | Part B Hazard Waste Permit Preparation | 17 |
| 1 | Practical Implementation of Your Hazard Communication Program | 80 |
| 1 | Occupational Health Course for Bell South | 29 |
| 1 | Hazardous Waste Incinerator Today | 34 |
| 72 | **Total programs for the year and total persons trained** | **3566** |

| Number of Offerings | Course Title | Persons Trained |
|---|---|---|
| | **1985** | |
| 1 | Hazardous Waste Conference | 40 |
| 13 | Supervision of Asbestos Abatement Project | 1137 |
| 3 | Asbestos Awareness Seminar | 130 |
| 1 | Industrial Toxicology | 22 |
| 1 | Project Inspection and Air Sampling | 67 |
| 2 | Building Survey/Hazard Assessment | 148 |
| 1 | Operations & Maintenance Planning | 63 |
| 1 | Asbestos General Session | 70 |
| 1 | Workshop on Repetitive Motion & Back Injury | 24 |
| 2 | Asbestos Abatement Workshop | 28 |
| 2 | Hazardous Waste Site Safety | 42 |
| 2 | Transportation of Hazardous Materials & Waste | 38 |
| 2 | Hazardous Waste Generators | 88 |
| 12 | Hazardous Waste Generators Workshop | 565 |
| 1 | Indoor Air Quality Symposium | 67 |
| 1 | On-Site Consultation, HazWaste Training Program | 35 |
| 1 | Corrective Action: Where RCRA & CERCLA Meet | 37 |
| 1 | Practical Implementation of Your Hazard Communication Program | 62 |
| 1 | Interim Procedures & Practices for Asbestos Abatement Projects | 48 |
| 1 | Southeastern Safety & Health Conference | 252 |
| 50 | Total programs for the year and total persons trained | 2963 |
| | **1984** | |
| 17 | Supervision of Asbestos Abatement projects | 590 |
| 1 | Industrial Toxicology | 25 |
| 1 | Southeastern Safety & Health conference | 175 |
| **9** | **Total programs for the year and total persons trained** | **790** |

*University of Alabama, Birmingham, Deep South Center School of Public Health*

Programs. Practitioner's Guide to Ergonomics; Introduction to Industrial Hygiene Air Sampling Equipment; Emergency Care in the Workplace; Sampling and Evaluating Airborne Asbestos Dust NIOSH 582; Respiratory Protection Program; Advanced Exposure Assessment; Indoor Air Quality/Biological Aerosols; Prevention and Control for Musculoskeletal CTD via Workplace Design; Occupational Health Nursing Update, 4th Annual Alabama Occupational Health and Safety Conference

*The University of Alabama*

Program. Haz Mat/Waste Manager Training Course (Cost: $75.00; Exam: $525.00).

Contents. Laws and regulations, specifically RCRA, DOT OSHA, CERCLA, SARA, and others; Compliance standards; management principles for hazardous materials and hazardous waste; basic principles pertaining to radiation, and to the chemistry and biological effects of hazardous waste.

*Mississippi State University*

Programs. Hazardous Material Management Review Course and Exam; Liability and Compliance, Hazardous Waste Storage; Requirements Pertaining to Hazardous Materials Management; Chemistry and Hazardous Materials; Physical Analysis and Waste Analysis OSHA Plans; Toxic Substance Control Act (TSCA) (Cost: $300.00).

OSHA Health and Safety Training Course. This 5-day course is designed for environmental engineers, safety and health personnel, plant/site workers, emergency response personnel, and all others involved in hazardous waste operations. It satisfies the federal off-site training for general site workers involved with hazardous waste and emergency response operations mandated under 29CFR 1910.120. Managers and supervisors directly responsible for hazardous waste site operations must receive the same 40 hours of initial instruction plus at least 8 hours of specialized training in managing hazardous waste operations (Cost: $700.00).

24 Hour Course. Employees engaged in handling of hazardous materials at treatment, storage, and disposal facilities, and emergency response teams must receive a minimum of 24 hours of initial instruction off the site (Cost: $375.00)

8 Hour Course. This 8-hour course is designed specifically for managers and supervisors of employees involved with hazardous materials and their cleanup. It presents the requirements for training, medical surveillance and industrial hygiene monitoring programs. These requirements will be presented within the context of policy, program, administration, documentation and recordkeeping (Cost: $150.00).

Underground Storage Tank Workshop. This 3-day course is designed for contractors, tank handlers, engineers, consultants, and health and safety professionals. The program will address proper installation and detection procedures for underground tanks, background Information on Underground Systems, EPA Technical and Regulatory Overview, State Regulatory Update, Legal and Insurance Considerations, Fiberglass and Steel Tank Design, Hands-on Field Experience (Cost: $450.00; Exam: $50.00).

*O&M Train the Trainer* Course. Prepares the LEAs to meet on-going training requirements specified under AHERA for custodial and maintenance workers (Cost: $550.00; Exam: $50.00).

*O&M Train the Trainer* Refresher Course. A 1-day seminar for MSU-accredited O&M Trainers; requirement for copyright privilege to reproduce *O&M Train the Trainer* course material (Cost: $125.00).

Supervisors/Contractors of Asbestos Abatement. Contract Specifications; Selecting and Protecting Workers; Minimizing Airborne Fibers; Cleaning Up the Work Area; Legal Considerations; Sealing Off the Work Area; Disposal of Waste Materials; Hands-on Training (Cost: $550.00; Exam: $50.00).

Supervision of Asbestos Abatement. Annual Refresher Course (Cost: $290.00; Exam: $35.00)

Designing Asbestos Response Actions Refresher Course. (Cost: $125.00; Exam: $35.00)

Designing Asbestos Response Actions. (Cost: $450.00; Exam: $50.00)

Asbestos Inspection and Assessment. (Cost:$360.00; Exam:$50.00)

Inspection and Assessment/Management Planner Refresher Courses. (Cost: $125.00 for both updates; Exam: $35.00)

AHERA Designated LEA Training/Update All public and private schools required to designate an individual who will ensure the school's compliance with AHERA. This course satisfies the Federal Environmental Protection Agency regulations for designate LEA training under the Asbestos Hazard Emergency Response Act AHERA. Individuals who nave previously completed LEA training will want to remain current by participating in an annual update (Cost: $125.00).

Contents. Role and Responsibilities of Designated LEA; Detection, Identification, and Assessment of ACM; Asbestos Management Programs; Health Effects of Asbestos Exposure; Options for Controlling ACBM; Relevant Federal and State Regulations.

Asbestos Abatement Worker Training Course. Includes lecture, demonstrations, and hands-on training; Physical characteristics of asbestos; Employee personal protective equipment; Personal hygiene; Medical monitoring; relevant federal, state, and local regulatory requirements; Procedures and standards; Potential health effects of exposure; State-of-the-art work practices; Additional safety hazards; Air monitoring; Establishment of respiratory protection programs (3 Days; Cost:$300.00; Exam $50.00).

*Tufts University: Center for Environmental Management*

Procedures and Practices for Asbestos Abatement Workers (4 Days; Cost: $575.00)

Procedures and Practices for Supervisors and Contractors (5 Days; Cost: $675.00)

Procedures and Practices Annual Review (Cost: $150.00)

Asbestos Abatement for Inspectors (Cost: $425.00)

Inspectors Annual Review (Cost: $75.00)

Asbestos Abatement for Management Planners (Cost: $275.00)

Management Planners Annual Review (Cost: $75.00)

Asbestos Awareness for the Building Trades (Cost: $275.00)

Lead-Based Paint Abatement for Workers, Supervisors, and Contractors (Cost: $325.00 for Workers [2-1/2 Days]; $400.00 for Supervisors [3 Days]; $500.00 for Contractors [4 Days])

Hazardous Waste General Site Worker Training (5 Days)

*Medical College of Virginia*

Environmental Training Courses. Contractor/Supervisor $625.00. Worker $475.00; Inspector $410.00

- Management Planner (Cost: $310.00)
- Lead-Based Paint (Cost: $475.00)
- Project Design (Cost: $625.00)
- Hazardous Waste (Cost: $625.00)
- NIOSH 582 (Cost: $700.00)
- Bloodborne Pathogens Compliance Workshop (Cost: $200.00)

*College of Engineering the University of Texas at Austin*

Program. Clay Liners And Covers for Waste Disposal Facilities The purpose of the 2-1/2-day course is to present a detailed review of the current state of knowledge concerning design, construction, and testing of clay liners and covers for land disposal facilities. Emphasis will be placed on presenting the latest research findings concerning construction, performance, and testing of clay liners. The state of the art for both laboratory and *in situ* permeability testing will be presented with emphasis on how to variables will be discussed and a fundamental framework for good construction practice outlined. A construction quality assurance program consistent with construction goals will be suggested. Attack of clays by chemicals will be discussed extensively. Principles of contaminant transport through clays will be reviewed with emphasis on testing to determine the parameters needed for analysis. Predictive tools and design techniques will be reviewed. Finally, a discussion period will be used to answer questions and tie together the concepts presented in the course (2-1/2 Days; Cost: $760.00)

*TREEO (University of Florida)*

Hazardous Waste Management Programs. Explores RCRA and SARA concepts as they relate to control of environmental pollutants. Special emphasis on underground storage tanks. Enforcement of environment laws in Florida. With special emphasis on Hazardous Waste and Groundwater. Identification and Testing. Identifying Haz Waste and monitoring environmental impact. RCRA-Generators. How to determine generator status and requirements for handling on-site waste, inspections, procedures and checklists. RCRA-Transportation. Discussion of the RCRA and DOT regulations as they apply to hazardous waste transportation (Cost: $450.00).

*Georgia State University Dept. of Geology - Atlanta, Georgia*

Programs. Fluvial Geomorphology, Geochemistry; Groundwater Hydraulics; Geology of Fractured Rock; Groundwater Modeling; Finite Difference Techniques.

*The University of North Florida - Environmental Education and Safety Inst.*

Programs. Asbestos Worker Training Course; Asbestos Supervisor Course; Asbestos Estimating Course; NIOSH 582 Equivalency Course; Asbestos Inspector Course; Asbestos Management Planner Course; Executive Asbestos Summary; Asbestos Supervisor Refresher; Asbestos Inspector Refresher; Asbestos Management Planner Refresher; Health and Safety Training Course for Hazardous Waste Site Supervisor; Hazardous Waste Site Worker's Refresher

See the Wayne State University Survey, Appendix B-2 for additional Academic sources.

**Commercial Sources**

*Executive Enterprises, Inc.*

Programs.

- A Basic Comprehensive Course on Environmental Regulation. Contents: National Environmental Policy Act; Clean Air Act; Resource Conservation and Recovery Act; Toxic Substances Control Act and Enforcement; Rules (Cost: $895.00).

- Environmental Courses, Conferences and Workshops. Contents: Regulation; Compliance; Insurance; Litigation; Environmental Issues; Air; Water; Pesticides; Materials Transportation; and Conducting Environmental Audits; Tank Management; Waste /Emergency Response Training 24 Hour course (Cost: $895.00)

- A Basic Comprehensive Course. Contents: Environmental Regulation National Environmental Policy Act; Clean Air Act; Resource Conservation and Recovery Act; Toxic Substances Control Act; and Enforcement; Rules (Cost: $895.00).

- Environmental Courses, Conferences and Workshops. Contents: Regulation; Compliance; Insurance; Litigation; Environmental Issues; Air; Water; Pesticides (Cost: $895.00).

- Groundwater Management and Restoration. This comprehensive 2-day course will focus on the key aspects of groundwater remediation and feature five comprehensive sessions covering in-depth site investigation through successful remediation; Regulatory Framework; Groundwater Remediation; Practical Elements of Groundwater Management; the Chemical Contaminants and Groundwater Conditions; and Application of Groundwater Remediation Techniques; of Successful Groundwater Restoration Program (Cost: 2 Days $895.00; registration fee: $95.00; procedures only: $125.00).

- Technical/Scientific Issues In Pesticide Regulation and Pesticide Registration Workshop 2-Day Conference. Regulatory Update; in Ground Water; "Big Fears-Little Risks"; Exposure Assessment; Pesticide Risk; For Improving The Process; Issues In Food Safety; and Food Surveys; Dietary Exposure; Risk: The Issue Of the 90's; Risk: Use And Abuse Of The Methods And Messages.; Registration Workshop; of FIFRA; of Registrations; Procedures: Federal Registration of a Pesticide; Data Requirements; Use Permits; and Packaging Requirements; Preparation of Submissions; Review and Interaction with the Agency (Cost: $950.00; 1-Day Workshop: $395.00).

*Center for Energy and Environmental Management*

Programs.

- Water Discharge Permits (Cost: $495.00)

- Permit Process and Strategy

- The NPDES permitting regulations

- How the permit program works

- Permit negotiations

- Toxic hot spots

- What You Need to Know About Biological Testing and Monitoring. Contents: Definition of water quality-based approach; Effluent toxicity test requirements; Is water quality-based testing needed?; Is Toxicity Regulatory Evaluation?; USEPA'S NPDES Water Permit Program; Permitting strategy; Changes in the program; Water toxics control program; Monitoring and enforcement; Penalties; National municipal policy

- Stormwater Requirements. Contents: Water Quality Act program covers; actions; considerations

- Citizen Suits, Defending Against Enforcement. Contains: Suit actions on permits; Compliance; actions; Permit negotiations and issuance.

*Radon Reduction and Testing Atlanta, GA*

Program. Radon Technology for Mitigators. Contents: Mitigation Theory; Mitigation Strategies; Diagnostic Measurements and Assessments; Selecting Techniques; Job Materials, Tools, and Equipment; Post Mitigation Assessments; New Construction; EPA Protocols; Worker Safety; In-Depth Case Studies; RCPP Exam Preparation (4 Days; Cost: $600.00).

*Epach Corporation-West Coast Conference*

Program. Hydrocarbon Contaminated Soils and Groundwater. Contents: Analysis, Fate, Environmental and Public Health Effects, and Remediation; Session 1, Perspectives on Hydrocarbon Contamination; Session 2, Emerging Hydrocarbon Contamination Issues; Session 3, Analytical Methodologies and Site Assessment for Hydrocarbon Contaminated Soils and Groundwater; Session 4, Environmental Fate and Modeling; Session 5, remedial Technologies for Hydrocarbon Contaminated Soils and Groundwater; Session 6: Risk Assessment and Risk Management.

*The Center for Professional Advancement, Environmental and Safety Technology*

Program. Asbestos Management and Training for Operations and Maintenance. Contents: Biological Treatment for Contaminated Soil and Groundwater; Evaluation and Control of Process Hazards; Explosions and Related Process Hazards; Indoor Air Quality; Industrial Biological Wastewater Treatment; Industrial Hygiene Practice (4 Days); Industrial Toxicology; Industrial Water Pollution Control Technology; Remediation of Hazardous Waste Site (2 Days); Safe Handling of Chemical Laboratory; Safety in the Chemical Pilot Plants; SARA Title III: An Industry Guide to Implementation; Solid Waste Management; Solvent Recycle, Recover.

*Midwest Asbestos Information Center (MAIC)*

Program. Comprehensive course combining classroom lectures and discussions with 2 days of hands-on experience (4 Days; Cost: $625.00; Exam $100.00); Participants use state-of-the-art diagnostic/mitigation equipment and mock-ups. Topics include: On occurrence and health effects; Dynamics of radon entry and behavior; Radon measurement procedures Radon in domestic water; Building investigation, diagnosis and mitigation systems selection; Design and installation of mitigation systems; Protecting worker health; Tools, equipment, supplies and materials; Postmitigation testing; Radon resistant new construction; Regulations, ethics, business practices and insurance; Building Inspection (3 Days; Cost: $500.00); Management Planning (2 Days; Cost: $350.00); Contractors/Supervisors Asbestos Training (4 Days; Cost: $625.00); Asbestos Worker Training (3 Days; Cost: $325.00); LEA Designated Person Asbestos Training (2 Days; Cost: $325.00); Project Designer Plus (4 Days; Cost: $785.00); Competent Person Training For Industry (3 Days; Cost: $450.00).

*Government Institutes, Inc.*

OSHA Compliance Course. Contents: Occupational Safety and Health Act; OSHA Standards; General Duty Clause and Generally Worded Standards; Material Safety Data Sheet (MSDS) Requirements; Other Aspects of

Hazard Communication; Recordkeeping; Imminent Dangers and Discrimination Complaints (2 Days; Cost: $895.00); OSHA Inspections; Hearing and Adjudication; Civil Liabilities; Criminal Liabilities; Health and Safety Legislation; Practical Suggestion: Do's and Don'ts of OSHA Compliance.

SARA Title III Compliance Update Course. Contents: Update on SARA Title III Provisions; EPA's Current Implementation Strategy for SARA Title III; Complying With Both Federal and State Requirements; Compiling the Chemical Inventory: Sections 311 and 312; Section 313 Air Emissions: Estimating Their Levels and Effects; Strategic Risk Communication Program for Section 313; Case Study: Industrial Compliance; Implementing Your Company's Title III Program; Community Communications: Risk Communication Workshop; Selecting the Software for Title III Data Management; Collecting, Managing, and Reporting Section 313 Data (2 Days; Cost: $895.00).

*Midwest Center for Occupational Health and Safety:*

Programs. Comprehensive Industrial Hygiene Review (Cost: $700.00); Chemical Exposures: Emergency Response and Management (Cost: $95.00); Asbestos Material Identification Using Polarized Light Microscopy (Cost: $800.00); Pulmonary Function Testing Training Workshop (Cost: $375.00); Comprehensive Occupational Health Nursing Review: Basic Theory and Update (Cost: $600.00); Respiratory Protection Program (Cost: $800.00); Safety and Health Training for Hazardous Waste Site Personnel. (Cost: Sessions I and II [40 hours]: $925.00; Session II only [24 hours]: $425.00); Safety and Health Training for Hazardous Waste Site Personnel Refresher (Cost: $125.00); Asbestos Update: Regulations, Issues and Trends (Cost: $150.00); Personal Computer Applications for Managing Right-to-Know and Superfund (Cost: Days I and II: $400.00; Day II only: $250.00); Laboratory Ventilation: Evaluation and Design (2 Days; Cost: $365.00); Asbestos Training for Building Inspectors and Management Planners (Cost: 5 Days: $750.00; Inspection only: $550.00); Educational Techniques for Occupational Health and Safety Professionals (Cost: $185.00); Asbestos Recertification Training for Contractors and Supervisors (Cost: $130.00); Asbestos Recertification Training for Building Inspectors and Management Planners (Building Inspection and Management Planning) (Cost: $130.00; Building Inspector Only: $98.00); Sampling and Evaluation of Airborne Asbestos Dust (NIOSH 582) (5 Days; Cost: $800.00); Conducting Indoor Air Quality Investigations - Tuition to be Announced (3 Days); Radon Reduction Training (4 Days; Tuition to be Announced); Asbestos Recertification Training in Practices and Procedures for Abatement Workers (1 Day; Cost: $130.00); Asbestos Training in Practices and Procedures for Abatement Workers (3 Days; Cost: $550.00); Asbestos Training in Practices and Procedures for Contractors, Supervisors, and Project Designers (4 Days; Cost: $650.00); Asbestos Training for Operations and Maintenance Workers (2 Days; Cost: $250.00); Physical Assessment for Occupational Health Nurses (Tuition to be Announced); Hospital Health and Safety Risk Assessment and Management (Tuition to be Announced); Occupational Hearing Conversation (Tuition to be Announced); Eleventh Annual Occupational Medicine Update (Cost: $125.00; $100.00 per person for two or more); Comprehensive Occupational Health and Safety Technologist (OHST) Review Course (3 Days; Cost: $400.00); Practices and Procedures in Lead-Based Paint Abatement (5 Days; Cost:$75[illegible].00); Integration of Occupational Health and Safety Content Into Undergrate Nursing Curricula (5 Days; Cost: $475.00); Health Risk Assessment and Risk Management (Cost: $625.00).

*Government Institutes, Inc. Washington, D.C.*

Program. Environmental Audits Course: Protecting Your company and yourself (2 Days; Cost: $895.00); Contains:

- What Is Auditing?
- A Practical Perspective, Current Federal and State Agency Activities in Environmental Auditing
- Legal Issues You Should Address Before and After the Audit
- Elements of Planning a Successful Audit Program
- Conducting the Audit - What Questions You Should Ask; What You Should Look For
- Proper Auditing Techniques: An Interactive Workshop, Description and Comparison of Existing Industrial Audit Programs
- A Detailed Review of a Typical Program

- Special Purpose Audits
- Using Computer in Environmental Audits
- Real Estate Transaction Audits
- Audit Report Writing Workshop
- How to Begin or Critique Your Audits Program.

- Environmental Reporting and Recordkeeping Requirements Course. Contents: Introduction to Reporting and Recordkeeping Requirements - Why they are Important; The Clean Air Act; R&R Requirements; RCRA; R&R Requirements; Federal Enforcement of Reporting and Recordkeeping Requirements; CERCLA and SARA Title III; R&R Requirements; OSHA; R&R Requirements, TSCA: R&R Requirements, Tying It all Together; Strategies for Reducing the Duplication Among the Requirements and Streamlining Your R&R System; Environmental Audits: How To Evaluate your Reporting and Recordkeeping Procedures; Efficient Organization of Your Records and Report; Available Microcomputer Systems for Environmental R&R; Case Study of an Effective Corporate System; Panel Discussion-Disclosure Issues Facing Property (2 Days; Cost: $895.00).

*Radon Reduction and Testing Atlanta, GA*

Programs. Radon Technology for Mitigators. Contains: Mitigation Theory; Mitigation Strategies; Diagnostic Measurements Assessments; Selecting Techniques; Job Materials, Tools, Equipment; Post Mitigation Assessment; New Construction; EPA Protocols; Worker Safety; In-Depth Case Studies; RCPP Exam Preparation (4 Days; Cost: $600.00).

*Azimuth Incorporated*

Programs. Supervision of Asbestos Abatement Projects (4-1/2 Days; Cost $500.00); Supervision of Asbestos Abatement Projects Refresher (1 Day; Cost: $150.00); Asbestos Abatement Worker Training (3 Days; Cost: $195.00); Operations and Maintenance Asbestos Worker Training (2 Days; Cost: $175.00); Inspecting for ACM in Buildings (3 Days; Cost: $375.00); Management Planning for ACM in Buildings (2 Days: Cost: $275.00); Sampling and Evaluating Airborne Asbestos Dust NIOSH 582 (5 Days; Cost: $650.00).

*Asbestos Abatement Associates, Inc.*

Programs. AHERA 3-day Worker Training (Cost: $175.00); AHERA Worker/Supervisor Refresher Training Course (Cost: $65.00 [Worker]; $145.00 [Supervisor]); AHERA Project Design Training (4 Days; Cost: $520.00); Roofer Training (1 Day; Cost: $115.00); AHERA Supervisor Training Course (5 Days; Cost: $495.00); AHERA Inspector/Management Planner Refresher Training course (1 Day; Cost: $55.00 [Inspector]; $120.00 [Management Planner]); AHERA Project Design Refresher (1 Day; Cost: $145.00); Roofer Supervisor Training (3 Days; Cost: $295.00); Asbestos management and Training for Operations and Maintenance (2 Days); Biological Treatment of Contaminated Soil and Groundwater; Evaluation and Control of Process Hazards; Explosions and Related Process Hazards; Indoor Air Quality; Industrial Biological Wastewater Treatment; Industrial Hygiene Practice (4 Days); Industrial Toxicology; Industrial Water Pollution Control Technology; Remediation of Hazardous Waste Site (2 Days); Safe Handling of Chemical Laboratory; Safety in the Chemical Pilot Plant; SARA Title III: An Industry Guide to Implementation; Solid Waste Management; Solvent Recycle, Recover, Reuse.

*Safety Systems Emergency Response School*

Programs. Compressed and Liquefied Gases Emergencies. This program involves First Responder, Haz Mat Team/Technician and Specialist Level Operations (1 Day; Cost: $45.00); Hazardous Materials Leak, Spill and fire Control (5 Days; Cost: $280.00); Transport Truck Emergencies Seminar/Workshop (1 Day; Cost: $45.00).

*Dupont Environmental Seminars and Training Materials*

Fundamentals of RCRA. This seminar provides an overview of the intent of RCRA and the scope and detail of the regulations. It tells how to characterize waste to determine whether compliance is necessary; provides guidance in formatting compliance plans (2-1/2 Days; Cost: $1350.00).

SARA Title III Overview. This seminar gives a comprehensive overview of SARA Title III so you will know how it affects you. It teaches about the Form R reporting requirements and timetable. Hands-on exercises give practical details and help to tackle compliance tasks efficiently (2 Days; Cost: $1095.00).

Minimizing Waste: An Action Plan. "Minimizing Waste: An Action Plan" helps develop and start successful programs that limit wastes and prevent pollution. This 2-day seminar combines a workable approach to activating your organization, clear steps to implementing a successful program, and hands-on exercises (2 Days; Cost: $995.00).

Fundamentals of Ground Water Hydrology. This Seminar teaches the basic principles of ground water hydrology, as they apply to your own ground water system. It gives the tools to monitor a ground water investigation, evaluate the recommendations of ground water consultants, and satisfy regulatory requirements (2 Days; Cost: $995.00).

*Center for Energy and Environmental Management*

Program. Water Discharge Permits (Cost: $495.00); Contains:

- Permit Process and Strategy (The NPDES permitting regulations; How the permit program works; Permit negotiations; Toxic hot spots)
- What You Need to Know About Biological Testing and Monitoring (Definition of water quality-based approach; Whole effluent toxicity test requirements; When is water quality-based testing needed?; What is Toxicity Regulatory Evaluation?)
- USEPA'S NPDES Water Permit Program (Priorities and permitting strategy; Recent changes in the program; Surface water toxics control program; Compliance monitoring and enforcement; Administrative penalties; Pretreatment; National municipal policy)
- Stormwater Requirements (What the Water Quality Act program covers; Recent EPA actions) Practical considerations
- C tizen suits; Defending Against Enforcement (Citizen suit actions on permits; Substantial compliance; Enforcement actions; Effects on permit negotiations and issuance).

*General Physics Corp*

Programs. Hazardous Waste Operations and Emergency Response (29CFR 1910.120 Training) (Cost: $900.00); CHazards: Definition, Types, Chemical and Physical Properties, Chemical Reactions, Chemical Compatibilities; Toxicology: Routes of Exposure, Toxic Effects/Dosage/IDLH PEL/REL/TLV; Rights and Responsibilities of Workers Under OSHA: 29 CFR Overview, Applicable Provisions of 29 CFR; Monitoring Equipment: Types, Functions, Capabilities, Uses, Limitations; Site Safety Plan: Safety Practices, Standard Operating Procedures, Site Safety Map, Safety Briefing and Meetings; Standard Operating Procedures: Hands-On Practice, Development and Compliance; Engineering Controls: Barriers, Isolation, Distance; Personnel Protective Clothing and Equipment (PPE): Assignment, Sizing, Fit-Testing, Maintenance, Use, Limitations, Hands-On Training; Basic Medical Program: Monitoring, First aid, Stress Recognition; Decontamination: Hands-On Training Using Simulated Field Conditions, Design and Maintenance of Decontamination Areas; Legal and Regulatory Aspects: OSHA 29 CFR State, EPA-40 CFR Local; Emergencies: Emergency Help and Self-Rescue, Emergency drills, Response to Emergencies, Follow up Investigation and Documentation.

The source for this survey is: "A Comprehensive Survey of Graduate Education and Training in Hazardous Waste Management". J. Air and Waste Management Assoc., vol. 40, No. 1, pp. 32-37.

# A Comprehensive Survey of Graduate Education and Training in Hazardous Waste Management

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Rockville, Maryland

The United States Department of Health and Human Services through Wayne State University (WSU) has completed a study of hazardous waste education and training in the United States. The study documents university course work and degrees as well as non-degree continuing education short courses. Major portions of the study are based on a WSU sponsored survey in which 1469 four-year degree granting institutions were contacted. Of the 732 institutions responding, 113 were identified as offering course work of some kind in hazardous waste. Information on 499 distinct non-degree short courses was also gathered and evaluated. The purpose, methodology and results of the study are summarized in this article.

The need for educated and trained personnel in hazardous waste and hazardous materials management in the United States is urgent and growing. Busch[1,2] cites the need for 22,500 professionals from 1990 to 1995 just to meet existing hazardous waste clean up needs in the United States; the U.S. Department of Health and Human Services[3] estimates that 100,000 professionals overall will be needed by 1992. Barber[4] suggests that the lack of trained professionals impedes a viable U.S. policy in hazardous waste management as much as funding limitations.

Universities in the United States have apparently responded slowly and cautiously to this need. In 1986 Davis[5] published the results of a brief, informal survey of 69 selected U.S. universities. Of the 42 respondents only 30 offered one or more courses in hazardous waste management at that time and only four had sufficient commitment to offer laboratory training. Davis concluded that the size of the university programs were minimal compared to the size of the problem. Busch[1] estimated that formal university programs are probably providing only 5 percent of the country's needs.

Since these studies the U.S. Environmental Protection Agency (EPA) and the National Institute for Occupational Safety and Health (NIOSH) have both created a system of regional university research centers. At the same time, awareness of the problems of hazardous waste management has escalated. In this context, the U.S. Department of Health and Human Services awarded a contract to obtain current information on hazardous waste education to Wayne State University (WSU). WSU also volunteered to conduct a comprehensive survey of all universities in the United States to obtain a current picture of hazardous waste formal education and continuing education. This paper presents the results of that survey. In addition, material has been collected from governmental agencies, professional societies and private agencies to complete the picture.

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### Objective

A comprehensive survey of 1469 four-year universities and colleges, excluding seminaries and other institutions dedicated to religious training, was conducted during the winter of 1989 to allow every institution to submit courses, programs, options or degrees in hazardous waste management. 732 institutions responded and data from those institutions forms the basis for this paper. The objectives of the study were to:

1) Identify the extent of hazardous waste education in the United States.
2) Identify the level and type of education (undergraduate, graduate, non-credit).
3) Identify the academic disciplines involved in the education.
4) Gather statistical information about the program.
5) Identify schools with major programs for more detailed study.

### Data Gathering Procedure

This study covers two areas of hazardous waste education: 1) hazardous waste education provided by academic institutions in the form of regular course work leading to degrees; and 2) hazardous waste education provided through non-degree, continuing education short courses, workshops and training sessions.

To help evaluate the data collected, a 161-member expert review panel comprised of professionals in industry, academia, and government was compiled. The segment of this panel associated with universities was used to critique data collection methods (mainly a questionnaire). A 12-member subgroup of the panel with representatives from all three groups was convened for a two-day meeting to provide input on how aspects of the hazardous waste education problem should be addressed and to analyze the preliminary data. This group was named the advisory panel.

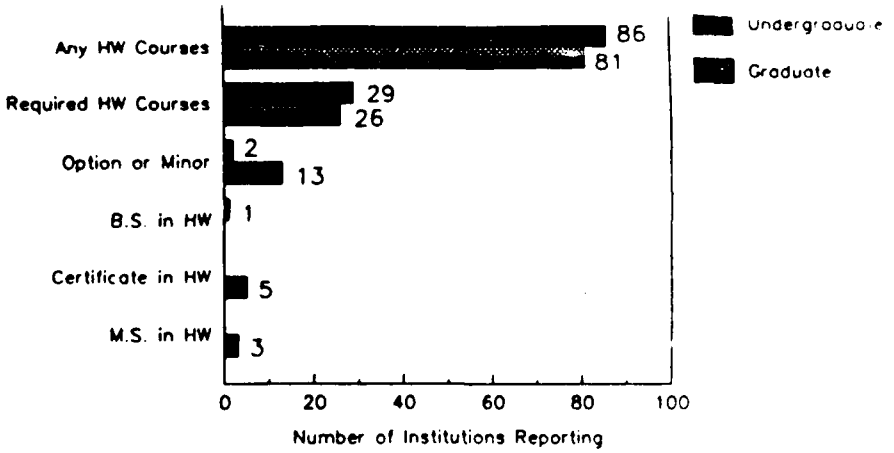



Figure 2. Profile of educational institution hazardous waste instruction offerings.

### Hazardous Waste Education Provided By Academic Institutions

In the first part of the study, information was collected using a questionnaire. This questionnaire was designed to collect information on:

1) The level of hazardous waste education offered (undergraduate, graduate, or noncredit).
2) The colleges and/or departments participating in each level of education offered.
3) The degrees offered which contain hazardous waste education and whether that offering is required, elective or part of an option.
4) Whether the hazardous waste program is accredited.
5) The inception date of any degrees, options, certificates, individual credit courses or non-credit courses offered in hazardous waste.
6) The estimated number of graduates or past attendees and the present enrollment in any degrees, options, certificates, individual credit courses or non-credit courses offered in hazardous waste.
7) The total number of semester hours offered in hazardous waste.
8) A request for program brochures and course outlines.

It was necessary in some cases to augment the responses on the questionnaire using references such as the *1989 Peterson's Guide to Graduate Programs in Engineering and Applied Science*, the *1988 Graduate School Guide*, the *AIChE Graduate School Directory*, and the *Association of Environmental Engineering Professors (AEEP) Register of Graduate Programs in Environmental Engineering.*

Initially, the survey was mailed selectively to groups of schools which were likely to have programs. These groups included:

- National Environmental Health Association (NEHA) Educational Institution Members
- Accredited U.S. Schools of Public Health
- National Institute for Occupational Safety and Health (NIOSH) funded schools
- National Institute for Environmental Health and Safety (NIEHS) funded schools
- Directors of Centers for Superfund Research
- Directors of Centers for Hazardous Waste Management
- Schools offering degrees in Industrial Safety and Health or Environmental and Occupational Health.
- Members of the Association of Environmental Engineering Professors

After some replies were received and the questionnaire was refined using comments from the expert review panel, a comprehensive mailing was conducted. This 1469 member mailing included all four-year degree granting institutions (excluding seminaries and bible colleges) in the United States including Puerto Rico and the U.S. Virgin Islands. This mailing list was obtained from the *1989 Higher Education Publications, Inc., (HEP) Higher Education Directory* which contains a listing of all accredited institutions of post-secondary education in the United States which meet the U.S. Department of Education eligibility requirements. A telephone follow-up was used to contact institutions which did not respond to the mail survey.

The section of the questionnaire dealing with student enrollment and graduation rates was unsuccessful and was excluded from data evaluation because too few respondents were able to provide meaningful data.

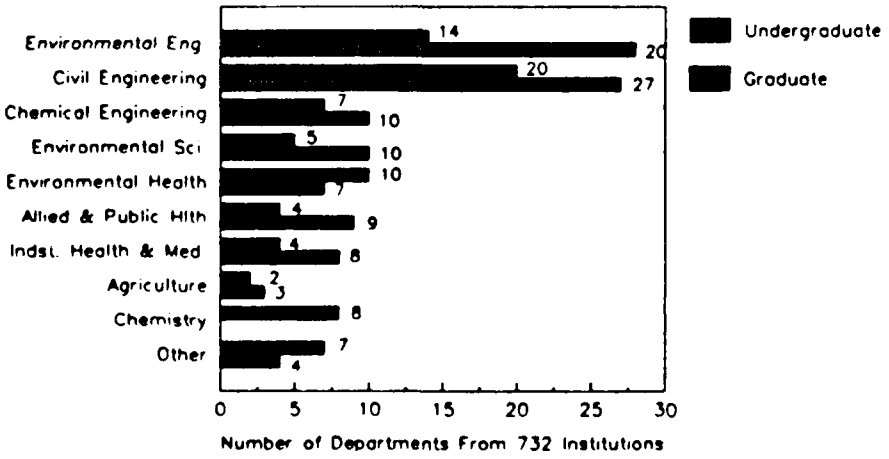



Figure 1. Departments offering credit courses in hazardous waste.

### Non-credit Hazardous Waste Education

The information about short courses and continuing education was collected in two ways. First, a file of brochure and course advertisements which had been mailed to the Departments of Chemical Engineering and Occupational and Environmental Health at Wayne State University over a roughly two-year time span was used. Second, a request was included in the question-

naire mailed to academic institutions (above) to include any such brochures. The specific information collected included:

1) Course title, a description of course content and the target audience.

2) The number of contact hours and whether continuing education units are offered.

3) The course sponsors, contact person, phone number and address.

4) The cost of the course and whether a manual is included.

## Survey Results

### Hazardous Waste Education Provided By Academic Institutions

*Quantitative results.* Of the 141 universities contacted in the selective mailing, 63 replied (47%). Of the 1469 institutions contacted through the comprehensive mailing, 684 replied (47%). Eliminating duplicates between the two mailing sessions, a total of 732 separate institutions replied out of the 1469 institutions contacted (50%). Of those 732, 602 (82%) offer no hazardous waste education of any kind.

One hundred and thirteen of those institutions responding offer at least one course as part of traditional or special degree programs. Of those 113, fewer than half (54) offer hazardous waste courses that are required for the respective degree. The majority of degrees containing hazardous waste education are in engineering, particularly Civil, Environmental and Chemical Engineering. Public and Environmental Health degrees are almost as numerous. Figure 1 presents a breakdown of the number of departments which have been identified as offering at least one course in hazardous waste/materials management.

Figure 2 provides a profile of the types of hazardous waste instruction offered at either or both (if applicable) undergraduate and graduate levels. Since courses are often offered at both levels and because courses required of some students are electives for others, there is overlap between the designated bars. While 86 universities offer at least one course at the undergraduate level and 81 at the graduate level, elimination of duplication yields 113 different institutions.

Three universities (New Jersey Institute of Technology in Newark, Tufts in Boston and Wayne State in Detroit) have been identified as offering a Master's Degree entitled Hazardous Waste or Materials Management.

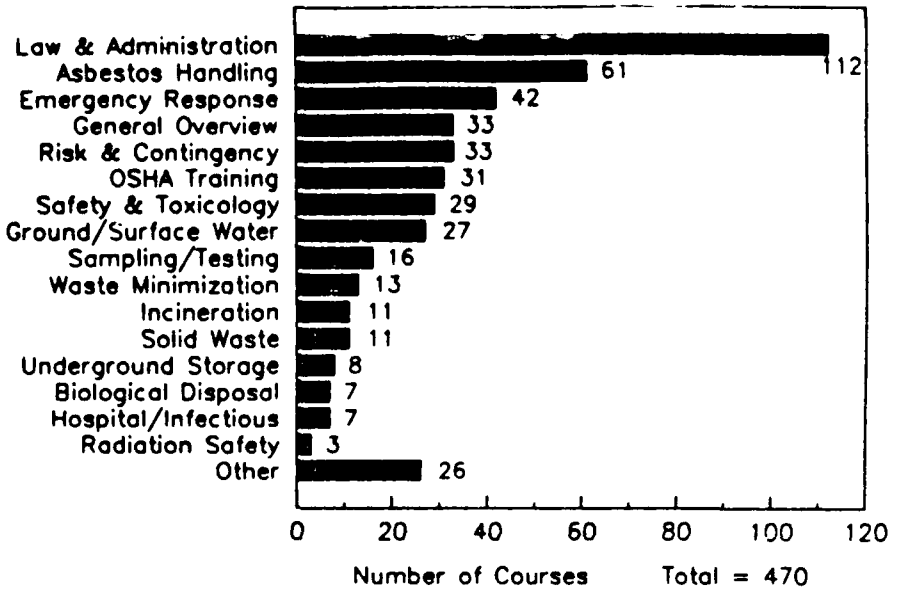



**Figure 3.** Non-degree hazardous waste short courses breakdown by subject.

Thirteen universities offer an option, minor, or emphasis in hazardous waste, at the graduate level: nine through Civil and Environmental Engineering, three through Environmental/Industrial/Public Health and one through both departments. Five universities offer certificate programs. Three offer non-credit continuing education certificates and two offer certificates for graduate credit (the University of California System is counted as one non-credit certificate even though it is offered at all branches of the university).

Fifty-two colleges and universities were identified as offering non-credit continuing education short courses and workshops.

None of the hazardous waste programs was accredited. However, most of the traditional undergraduate degree programs (such as engineering or graduate programs in public health) which contained hazardous waste courses were accredited by accepted accrediting bodies.

*Qualitative results.* It is generally agreed that professionals educated to deal with hazardous waste management problems are needed but there are many visions as to what form the education should take. Several of the schools surveyed expressed concern that a degree program (or even a specific course) dealing with only hazardous waste would provide an education which is too narrow. Some of the schools emphasized that they made a conscious choice to include hazardous waste in existing courses as an application of general scientific principles rather than creating a separate course entity. Whether a potential hazardous

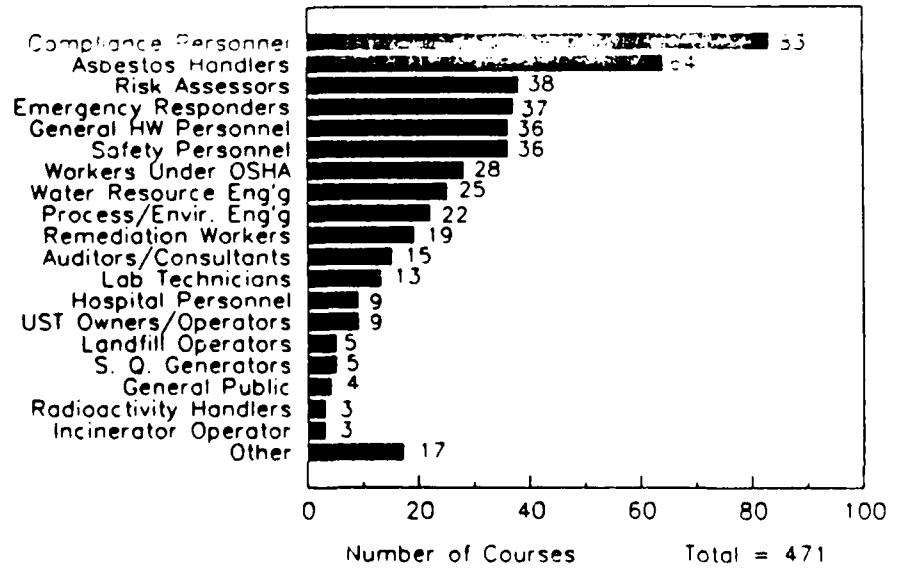



**Figure 4.** Continuing education short courses breakdown by target audience.

waste manager can receive a complete or appropriate education in this manner is questionable, particularly considering the complex legal, political and technical issues involved.

The largest number of degrees that include some form of hazardous waste education are offered through Engineering, mainly Civil, Environmental and Chemical Engineering departments. However, since we did not collect data on the number of graduates in the different disciplines, we could not state with certainty that the engineering programs are producing the greatest number of hazardous waste educated professionals. The three identified Master's programs are offered through Engineering departments: Tufts' Department of Civil Engineering, Wayne State's Department of Chemical and Metallurgical Engineering and NJIT's Department of Chemical Engineering, Chemistry, and Environmental Science. Both Wayne and Tufts require an introductory general overview course and a course on public policy in addition to a variety of technical, law, safety, and health classes. Lab work or an internship is required for the Wayne State and NJIT Degrees. Tufts provides a required "Capstone" course which applies the principles presented in the Master's program to a hazardous waste problem. The Master's Degree at Tufts is offered with a choice of three different "Tracks": 1) Management and Policy, 2) Treatment and Cleanup Technology, and 3) Hazardous Materials and Human Health. Each Track is 30 credits, has the same core classes and different electives. The Master's at Wayne State is 38 credits with 5 elective credits. NJIT's program has 28 required credits, including a Master's thesis in the area of hazardous waste research, and 6 credits of electives. Table I presents a comparison of the courses in each of the Master's programs. Courses which are required (R) in one program but are electives (E) in another are so identified.

Table x. List of the [illegible]

| Organization name | Number of different courses offered per year | Total number of courses (including multiples) offered per year |
|---|---|---|
| U.S. EPA, Office of Solid Waste and Emergency Response (OSWER) | 36 | 600[a] |
| Georgia Institute of Technology, Environmental Health and Safety Division | 38 | 100 |
| Texas A&M University System, Texas Engineering Extension Service | 23 | 257 |
| National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | 33 | 100 |
| University of Florida, Continuing Educational Center for Training, Research and Education | 30 | 129 |
| University of California System, Departments of Continuing Education | 30 | 38 |
| Eastern Michigan University, Corporate Services | 22 | 113 |
| University of Wisconsin System, Department of Engineering Professional Development | 22 | 31 |
| Executive Enterprises, Inc. | 21 | 38 |
| Government Institutes, Inc. | 17 | 21 |
| Total | 272 | 1,427 |

[a] Estimation.

Thirteen of the responding universities developed a compromise between a separate degree and no distinct hazardous waste education by instituting an option or emphasis in hazardous waste through some existing traditional degree program (most notably in Environmental Engineering). Of those schools providing information on the content of the option, most included a general overview of hazardous waste which usually incorporated some discussion of the legal aspects of hazardous waste issues. In most of these hazardous waste options, the emphasis was on wastewater and groundwater rather than solid waste or air pollution, most likely because water issues are traditional research areas for these universities.

### Non-credit Hazardous Waste Education

Using the collection methods described above, 499 distinct short courses were evaluated. The largest segment of the courses deal with legal, administrative and compliance related issues. Figure 3 presents a breakdown of the course offerings by subject.

Most short courses designate the target audience which would benefit most from the offered course. In Figure 4, the courses are grouped according to those designations. The largest number of courses target compliance personnel.

**Table 1.** Required (R) and elective (E) courses for three masters's degree offerings in hazardous waste.

| Course | NJIT | Tufts | Wayne |
|---|---|---|---|
| Introduction/Overview of Hazardous Waste | E | R | R |
| Environmental/Hazardous Waste Law | R | E | R |
| Environmental Chemical Science or Fate and Transport of Environmental Contaminants | R | R | E |
| Health Effects, Risk Assessment and/or Toxicology | R | R | R |
| Laboratory or Internship | R | | R |
| Risk Management and Public Policy | | R | R |
| Biological Waste Disposal | E | E | R |
| Land Disposal | | E | R |
| Groundwater | | E | R |
| Probability, Statistics, Data Analysis | | E | R |
| Biochemistry, Biomedical Sciences | R | | E |
| Industrial Safety, Chemical Process Safety | | E | R |
| Thermal Processing, Incineration | | | R |
| Transportation, Emergency Response, Spill Response | | | R |
| Waste Minimization, Recycling | | E | R |
| Capstone Course | | R | |

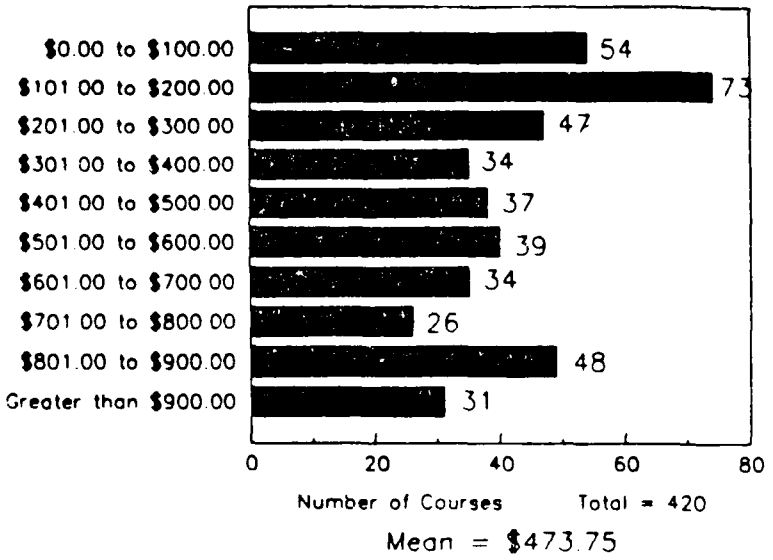



**Figure 5.** Continuing education short courses breakdown by total cost.

Universities and the government offer the greatest variety of different courses and the greatest number of courses overall (including annual replications). However, there are several private companies which provide a significant number of courses. Table II provides a comparison between the number of different courses and the number of total courses offered by ten of the largest course suppliers. The U.S. EPA Office of Solid Waste and Emergency Response has been identified as the largest single provider of hazardous waste related short courses, offering approximately 36 distinct short courses per quarter and 154 total courses per quarter, including replications.

These organizations were determined by analyzing the number of different courses each organization offered and the yearly frequency of each course. A slightly higher priority was given to having a variety of courses.

In general, these courses are quite expensive. They can range from $15.00 to over $1300.00 depending on the length and sponsorship of the course. Figure 5 shows a breakdown of the total cost of short courses without regard to course length. Figure 6 presents a comparison of the length (in actual course contact hours) of the courses. In Figure 7, Figures 5 and 6 are combined to present a breakdown of cost per contact hour. The information is displayed separately for courses which are one day long (8 contact hours or less) and courses which are more than one day. The mean for the data is presented below each graph.

Usually, the cost per day of courses provided by private companies is slightly higher than that of courses provided by academic institutions or government agencies. The most recognizable trend in the data was the cost per day for OSHA training courses. This cost consistently remained between $136.00 and $160.00 per day.

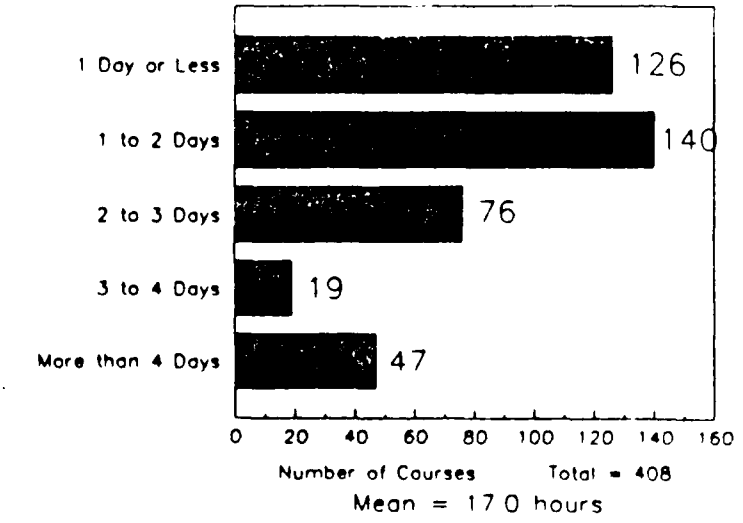



**Figure 6.** Continuing education short courses breakdown by number of days.

## Conclusions

The demand for professionals with education and training in hazardous waste is large and growing. Universities have responded to the demand but the number of formal programs available remains quite small in terms of the projected need.

The survey of 732 responding colleges and universities described herein identified 113 programs offering some formal credit courses in hazardous waste management but only three with a Master's degree level of effort, and only 13 with an identified graduate option, track or emphasis. Programs incorporating hazardous waste tend to be concentrated in engineering; primarily Civil, Environmental, or Chemical Engineering and in Schools of Environmental or Public Health.

The major delivery of training appears to be in the continuing education, non-credit, short course format. Fifty-two colleges and universities participate in that format and 499 separate and distinct short courses were identified. Over two thousand such courses are offered per year by the major government, professional, academic and private groups. The U.S. EPA, Georgia Tech, Texas A&M University and NIOSH offer the greatest number of these courses. The primary interest lies in courses on law and administration, asbestos handling, and emergency response. These continuing education courses seem to be the short term solution to the lack of hazardous waste professionals. After analyzing the data, the expert review panel has suggested that each course should provide an optional comprehensive exam. These exams would give the courses credibility beyond obtaining Continuing Education Units (CEU's). The exams may also help justify the expense of the courses in the eye of employers.

The collection of data for this study extends beyond publication of this article and the authors welcome new information.

## Acknowledgment

The authors acknowledge the partial support of USDHHS and ATSDR through contract 240-88-0069 and the reviews by over 30 individuals on our Expert Review Panel. Special recognition is deserved by our Advisory Panel: John Abraham of ATSDR, Lin Brown of Tufts University, James Carlson of Chrysler Motors, James Johnson of Howard University, James Leemann of

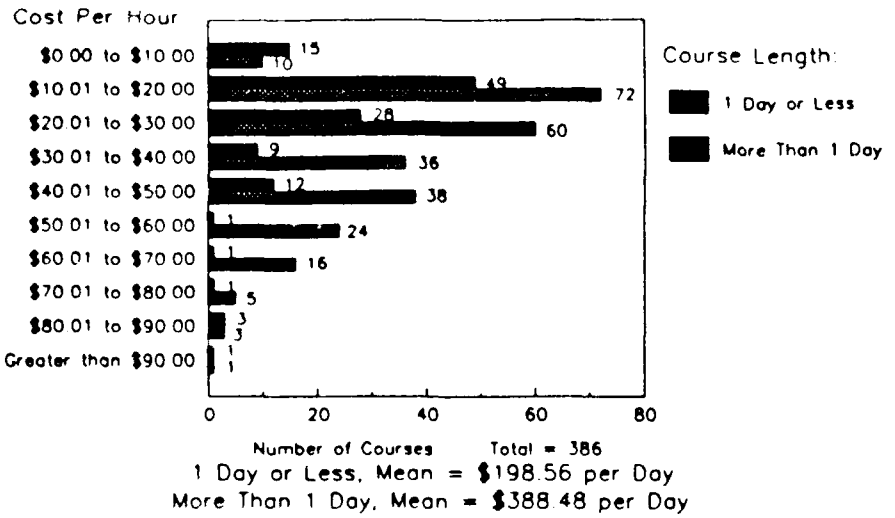



**Figure 7.** Continuing education short courses breakdown by cost per contact hour.

Dupont, Larry Mazzuckelli of NIOSH, John Nemeth of the Georgia Institute of Technology, Fay Thompson of the University of Minnesota, Myron Black of Dundee Cement, Bruce Piasecki of NY State, Richard Young of Puduan Publishing, Jim Hayes of the U.S. EPA and James Dragun of Dragun Associates.

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The "Evaluation of Hazardous Waste Education and Training" Survey data base was prepared by Wayne State University under contract No. 240-88-0069 to the U. S. Department of Health and Human Services, Bureau of Health Professions

# FINAL TRAINING AND EDUCATION LISTS

## VOLUME 1: NON CREDIT, CONTINUING EDUCATION SHORT COURSES

## (TASK 8 DELIVERABLE)

## EVALUATION OF HAZARDOUS WASTE EDUCATION AND TRAINING

CONTRACT NO. 240-88-0069

June 30, 1989

SUBMITTED TO

Mr. Barry Stern, MPH, RS
Dept. of Health and Human Services
Bureau of Health Professions
Room 8C-09 Parklawn Building
5600 Fishers Lane
Rockville, MD 20857

by

Robert W. Powitz and Ralph H. Kummler
Project Director Project Manager

Wayne State University
Detroit, MI 48202

Approved by

_____
Barry Stern, MPH, RS

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Date

Wayne State University

## Introduction

In accordance with contract 240-88-0069, these two volumes present the final education and training lists. Although described as final, for the sake of completeness and accuracy the data collection for these lists will continue for the duration of the project. These lists cover two areas: 1) short courses, workshops and training sessions in hazardous waste (Volume 1) and 2) hazardous waste education provided by universities in the form of regular courses and degrees (Volume 2).

Information was collected both actively and passively. The active collection of data was achieved by using a WSU funded questionnaire mailing. Several groups were targeted for an initial, selective questionnaire mailing. These groups included members of the Expert Review Panel associated with universities, the NEHA Educational Institution members, accredited U.S. Schools of Public Health, NIOSH members, NIEHS members, Centers for Superfund Directors, Directors of Centers for Hazardous Waste Management and schools offering degrees in Industrial Safety and Health or Environmental and Occupational Health.

After some replies were received and the questionnaire was refined, a comprehensive mailing was conducted. This 1469 member mailing included all four year degree granting institutions (excluding seminaries and bible colleges) in the U.S. including Puerto Rico and the U.S. Virgin Islands. This mailing list was obtained from the 1989 HEP Higher Education Directory which contains a listing of all accredited institutions of post-secondary education in the United States which meet the U.S. Department of Education eligibility requirements. It was necessary in some cases to augment the responses on the questionnaire using references such as the 1989 Peterson's Guide to Graduate Programs in Engineering and Applied Science, the 1988 Graduate School Guide and the AIChE Graduate School Directory.

In addition to active solicitation, data was collected using resources in the Chemical Engineering and Occupational and Environmental Health Departments such as college catalogues and brochures mailed to the departments. Data collected on short courses was predominantly collected in this manner.

This database represents a response rate of 26% (380 different schools responding out of 1469 different schools contacted). The response was higher for the selective mailing (47%) and lower for the bulk mailing (23%) as expected.

The database is rather flexible and can be sorted by any field or word in a field appearing in the database report. All of the database tables also contain a "comments" column which, although not printed, can be used to sort the data. For example, the database table on university education can be sorted by those contacted through bulk mailing or those contacted through selective mailing using the "comments" column.

## Short Courses, Workshops, and Training Sessions
(Volume 1)

The two "Hazardous Waste Educational Programs" database reports in Volume I contain information collected about short courses, workshops and training sessions. These programs do not lead to a degree themselves, though several of them can be used to obtain some course credit at the sponsoring university. The majority of the programs provide Continuing Education Units and a few are designed specifically to meet OSHA off-site training requirements.

The information about the programs is separated into two reports. The first report is designed to provide general information about the program and a contact name, phone number and address for further information. This report contains the following columns:

1) PROGRAM NAME - Notes the program title. The programs are listed alphabetically by title.
2) CONTENT - Provides a brief summary of the content.
3) SPONSOR ORGANIZATION - Notes the organization or university and department responsible for the program.
4) COSPONSOR - Notes any additional organizations responsible for the program.
5) CONTACT PERSON - Provides a contact person (if available) and phone number to request further information.
6) ADDRESS - Notes an address to obtain further information.
7) CONTACT HRS - Notes the number of hours actually spent in the program, excluding lunch hours and breaks.
8) TARGET - Supplies a specific target audience for the program, if known.

The second report supplies more specific information about the programs. It contains the first four columns in the first report plus the following seven additional columns:

1) EXAM - Notes whether (Y) or not (N) an exam is required in the program.
2) PROG. TIME - Provides the date of the first offering of the course.
3) NO. OF SESS. - Notes the number of times the particular program will be offered during the year. The first session is offered on the date of "Prog. Time" and any additional sessions are offered after that date.
4) FEE - Notes the cost of the program. This cost does not include discounts for multiple attendance or membership discounts. Lodging and meals are not included.
5) CR. CARD - Notes whether (Y) or not (N) the sponsoring organization accepts a credit card.
6) COLL. CR. (1) or CEU's (2) - A 1 in this column indicates that college credit is available, a 2 indicates that Continuing Education Units are available.

7) MANUAL - Notes whether (Y) or not (N) a manual or study guide is provided and included in the program cost.

Since these database reports cannot present all the information provided in the program brochures, the brochures have been retained to supplement the database.

## Hazardous Waste Education Provided By Universities (Volume 2)

The information about university programs is also divided into two database reports. Both reports are included in Volume II. These reports are not presented in column form because of the large number of fields. For increased clarity, the data for each university is presented as a chart instead. The first report contains general information on the hazardous waste education provided by universities in the form of course work. The report provides:

1) The university name and address.
2) The respondents name and phone number.
3) The type of hazardous waste education provided (undergraduate, graduate, or non-credit).
4) A program name, if any.
5) A list of colleges, departments, and disciplines providing each type of education.
6) A list of degrees containing hazardous waste courses and the distinction of whether the hazardous waste courses are electives, required, part of an option, or part of a certificate; along with an estimate of the fraction of the total course work which is hazardous waste related.

The second database report was designed to contain more specific information about structured university programs. It includes the inception dates, enrollment rates and graduation rates. The section of the questionnaire dealing with this data was unsuccessful because two few respondents were able to provide meaningful data. This section of the database will be excluded from further evaluation.

# REPORT I

## GENERAL INFORMATION ON NON-CREDIT, CONTINUING EDUCATION SHORT COURSES

arranged alphabetically by course title

HAZARDOUS WASTE EDUCATIONAL PROGRAMS

REPORT I

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| 1-Day Refresher Course for AHERA: Asbestos Abatement Workers | Information about new developments in the asbestos abatement industry, regulatory changes, review of proper work practice, review of health effects of asbestos exposure and state of the work practices | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | Asbestos Handlers |
| 1-Day Refresher Course for AHERA: Contractors/Supervisors | Information about new developments in the asbestos abatement industry, regulatory changes, review of proper work practice, review of health effects of asbestos exposure and state of the work practices | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | Asbestos Handlers |
| 1989 Update on RCRA Conference, 2nd annual | Provides unique insights and a complete update on legal, regulatory, and management developments effecting your hazardous waste management program. | Government Institutes, Inc., | | , (301)251-9250 | Government Institutes, Inc., 966 Hungerford Drive, #24, Rockville, MD 20850 | 13.0 | Compliance Officers |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| 24 Hour Hazardous Waste Transporter Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | Christopher Wagoner, (217)333-0640 | Instit. of Labor and Industrial Relations, Univ. of Illinois, 504 East Armory Avenue, Champaign, IL 61820 | 24.0 | Transporters |
| 24 Hour Hazardous Waste Treatment, Storage and Disposal Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | Christopher Wagoner, (217)333-0640 | Instit. of Labor and Industrial Relations, Univ. of Illinois, 504 East Armory Avenue, Champaign, IL 61820 | 24.0 | General HW Personnel |
| 24 Hour Workshop for Emergency Response Teams and Workers at TSDF's | Not Documented | University of Wisconsin, Engineering Professoinal Development | -0- | Michael Waxman, (800)262-6243 | University of Wisconsin, Engineering Professional Development, 432 N. Lake Street, Madison, WI 53706 | 21.0 | Emergency Responders |
| 4-Hour Refresher Course: for AHERA Management Planners | Evaluation and interpretation of survey results, hazard assessment, evaluation and selection of control options and development of an O&M program. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 4.00 | Asbestos Handlers |
| 4-Hour Refresher Courses: for AHERA Building Inspectors | Information about new developments in the asbestos abatement industry, regulatory changes, review of health effects of asbestos exposure and state of the work practices. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 4.00 | Asbestos Handlers |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| 40 Hour Hazardous Waste General Site Worker Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | Christopher Wagoner, (217)333-0640 | Instit. of Labor and Industrial Relations, Univ. of Illinois, 504 East Armory Avenue, Champaign, IL 61820 | 40.0 | Workers Under OSHA |
| 40 Hour Hazardous Waste Operations Training | The program provides 40 hours of intensive training to fulfill current OSHA regulatory requirements. | Lehr Training Institute, | Med-Tex Associates, Inc. & Thorne Environmental, Inc. | , (714)259-1575 | Lehr Training Institute, Los Angeles Regional Facility, 1431 Warner Ave., Tustin, CA 92680 | 40.0 | Workers Under OSHA |
| 8 Hour Hazardous Waste Operations Training Annual Refresher Course | The program provides 8 hours of intensive training to fulfill current OSHA regulatory requirements for an annual refresher course. | Lehr Training Institute, | Med-Tex Associates, Inc. & Thorne Environmental, Inc. | , (714)259-1575 | Lehr Training Institute, Los Angeles Regional Facility, 1431 Warner Ave., Tustin, CA 92680 | 8.00 | Workers Under OSHA |
| 8 Hour Hazardous Waste Refresher Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | Christopher Wagoner, (217)333-0640 | Instit. of Labor and Industrial Relations, Univ. of Illinois, 504 East Armory Avenue, Champaign, IL 61820 | 8.00 | Workers Under OSHA |
| 8 Hour Hazardous Waste Supervisory Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | Christopher Wagoner, (217)333-0640 | Instit. of Labor and Industrial Relations, Univ. of Illinois, 504 East Armory Avenue, Champaign, IL 61820 | 8.00 | Workers Under OSHA |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| AAAR Seventh Annual Meeting | A selection of introductory and advanced tutorials covers the general subjects of aerosol science and technology, material science, clean-room technology, and man/aerosol interactions | American Association For Aerosol Research, Center for Aerosol Technology, Research Triangle Institute | -0- | Ms. Chloe Smith, (919)541-6736 | Center for Aerosol Technology, Research Triangle Institute, P.O.Box 12194, Research Triangle Park, NC 27709 | 8.00 | Other |
| Activated Sludge Process Control Workshop | Designed for wastewater treatment facilities personnel and addresses systems process control analysis, with emphasis on how to use this information in plant operations. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Water Resource Engineer |
| Advanced Air Sampling for Hazardous Materials | -0- | U.S. EPA, OSWER | -0- | Registrar, (513)569-7537 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Lab Technicians |
| Advanced Emergency Response | Additional training in emergency response beyond the OSHA required 24 hours. | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 24.0 | Emergency Responders |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Advanced Hazardous Materials Seminar (for Transporters) | Presents the Title 49 CFR *Hazardous* Materials Regulations in a procedural perspective in order to simplify both shipper and carrier problems. | American Trucking Association, | -0- | Registrar, (703)838-1755 | American Trucking Associations, 2200 Mill Road, Alexandria, VA 22314-4677 | 14.0 | Transporters |
| Advanced Seminar: Hazardous Waste Management and Compliance in Michigan | Updated information about Federal and Michigan Hazardous Waste Management laws and regulations. Current activities, policies, interpretations, changing laws/regulations and predictable trends. | Waste Systems Institute of Michigan, | Research and Technology Institute of West Michigan | Registrar, (616)771-6620 | Haz Waste Seminar, Conference Planning, 228 Eberhard Center; 301 West Fulton, Grand Rapids, MI 49504 | 16.0 | General HW Personnel |
| Advanced Supervision of Asbestos Abatement Projects: Annual Update Course | *Not Documented* | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 16.0 | Asbestos Handlers |
| Advanced System Reliability Engineering | Offers engineers and managers strategies for evaluating the reliability, safety, and risk associated with systems. Emphasis on advanced techniques for solving reliability and safety problems. | JBF Associates, Inc., | -0- | Course Administrator, (615)966-5232 | JBF Associates, Inc., Technology Drive, 1000 Technology Park Center, Knoxville, TN 37932-3341 | -0- | Risk Assessors |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Advanced Waste Water Treatment | Applicability and feasibility of applying advanced waste water treatment concepts to meet predetermined waste quality criteria. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | Water Resource Engineer |
| Advanced Water Pollution Control: Physical and Chemical Waste Treatment Sludge Handling and Disposal | Not Documented | University of Texas at Austin, Continuing Engineering Studies | -0- | Registrar, (512)471-3396 | Continuing Engineering Studies, College of Engineering, Cockrell Hall 10.324, University of Texas at Austin, Austin, TX 87812 | 35.0 | Engineers |
| AHERA 12-Hour Asbestos Awareness Course | An introduction to sources and recognition of asbestos hazards in the workplace. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 2.00 | Asbestos Handlers |
| AHERA 16-Hour Asbestos Awareness Course: for Operation and Maintenance Workers | Theory and operational hands-on aspects of proper operations and maintenance practices. Emphasis will be placed on safety precautions during all phases of maintenance. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 16.0 | Asbestos Handlers |
| AHERA Asbestos Abatement Workers: Working with Asbestos Abatement | Information and experience to conduct asbestos abatement activities safely. Includes six hours of hands-on activities. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 24.0 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| AHERA Building Inspector/Management/Management Planner Update | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 8.00 | Asbestos Handlers |
| AHERA Building Inspectors: Inspecting Buildings for Asbestos | Information and hands-on skills for inspecting and sampling buildings for asbestos containing materials according to AHERA Regulations. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 24.0 | Asbestos Handlers |
| AHERA Contractor and Supervisors: Contracting for Asbestos Abatement | Theory and operational hands-on aspects of proper asbestos abatement, management and supervision. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 32.0 | Asbestos Handlers |
| AHERA Management Planners: Designing Management Plans for Asbestos Management | Theory and organizational aspects of proper asbestos abatement management plan development in accordance with AHERA Regulations. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 16.0 | Asbestos Handlers |
| AHERA Refresher Course for Asbestos Contractors and Supervisors | This course meets EPA annual refresher training requirements for accredited contractors/supervisors doing abatement and project design work. | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 8.00 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| AHERA Refresher Course for Asbestos Inspectors | This course meets EPA annual refresher training requirements for accredited building inspectors. | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 4.00 | Asbestos Handlers |
| AHERA Refresher Course for Asbestos Inspectors and Management Planners | This course meets EPA annual refresher training requirements for accredited building inspectors and management planners. | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 8.00 | Asbestos Handlers |
| Air and Water Pollution Control Law | Includes sessions on Clean Air and Water Acts enforcement, Wetlands, environmental Management, indoor air pollution, and hazardous waste management. | American Law Institute - American Bar Association, | Environmental Law Institute | Alexander Hart, (215)243-1630 | Registrar, ALI-ABA, 4025 Chestnut Street, Philadelphia, PA 19104 | 15.0 | Lawyers |
| Air Permitting for New and Modified Sources: A Comprehensive Course on Meeting Clean Air Act Licensing Requirements | How to handle clean air act licensing requirements and to formulate a clean air act licensing plan at the appropriate time in the business planning process. | Executive Enterprises, Inc., | -0- | Registrar, (800)831-8333 | Executive Enterprises Inc., 22 West 21st Street, New York, New York 10010-6904 | 11.0 | Compliance Personnel |

* Cr. = Semester Credit Hour

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Air Pollution Control | Air pollution causes, transport, effects and monitoring will be reviewed as well as principles and terminology of air pollution control engineering. Major emphasis on prevention and control. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 24.0 | Process/Environmental Eng. |
| Air Sampling Practicum for Asbestos Technicians | 4 day hands-on course provides current or potential asbestos sampling technicians with the background they need to understand and begin performing sampling at asbestos abatement sites. | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 32.0 | Asbestos Handlers |
| Air Surveillance for Hazardous Materials | -0- | U.S. EPA, OSWER | -0- | Registrar, (513)569-7537 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Lab Technicians |
| Airborne Asbestos Sampling and Laboratory Analysis | A laboratory course covering techniques of asbestos sampling and analysis. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-6682 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 40.0 | Asbestos Handlers |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Alternative Products for Medical Waste Disposal Handling, Transportation and Storage | Presents information on alternate products and services which will ensure the safest, most cost effective and environmentally sound program for waste disposal. | Randolph, Breyer & Associates, Inc., | Cross / Tessitore & Associates | Susan Orio, (314)576-0220 | Randolph, Breyer & Associates, Inc., 512 S. Hanley, Suite 79, St. Louis, MO 63105 | 10.0 | Hospital Personnel |
| American Society of Safety Engineers 28th Annual Professional Development Conference and Exposition | A variety of short (half day) courses on subjects relating safety, regulation, and environmental protection to industrial situtations. | American Society of Safety Engineers, | | ASSE, (312)692-4121 | ASSE Conference Registrar, 1800 E. Oakton Street, Des Plaines, IL 60018 | 4.00 | Safety Personnel |
| American Society of Safety Engineers 28th Annual Professional Development Conference and Exposition - Post Conference Continuing Education Seminars. | How to make high impact safety and health presentations. | American Society of Safety Engineers, | | ASSE, (312)692-4121 | ASSE Conference Registrar, 1800 E. Oakton Street, Des Plaines, IL 60018 | 14.0 | Safety Personnel |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| American Society of Safety Engineers 28th Annual Professional Development Conference and Exposition - Post Conference Continuing Education Seminars. | Hazard communication for safety practitioners. | American Society of Safety Engineers, | | ASSE, (312)692-4121 | ASSE Conference Registrar, 1800 E. Oakton Street, Des Plaines, IL 60018 | 7.00 | Safety Personnel |
| American Society of Safety Engineers 28th Annual Professional Development Conference and Exposition - Post Conference Continuing Education Seminars. | Safety Management - Program management and evaluation. Required for ASSE Certificate in Safety Management. | American Society of Safety Engineers, | | ASSE, (312)692-4121 | ASSE Conference Registrar, 1800 E. Oakton Street, Des Plaines, IL 60018 | 4.00 | Safety Personnel |
| Analytical Training Workshops | Features demonstrations and experience in sampeling, sample preparation, calibration techniques, analytical procedures, and calculations. | Hach Technical Training Center, | -0- | 1800-227-4224 | HACH Company - MCD, P.O. Box 389, Loveland, CO 80539 | -0- | Lab Technicians |
| Annual Hazardous Waste Refresher | Not documented - Fees to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Washington Educational Resource Center & U.S. Department of Health and Human Services | Jan Stewart, (206)543-1069 | Northwest Center for Occupational Health & Safety, Dept. of Environmental Health, Univ. of Washington, SC-34, Seattle, WA 98195 | 8.00 | Workers Under OSHA |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Annual Leadership Forum on Solid Waste Management | A tutorial on geochemical and ground water issues will be presented along with a selection of technical sessions centering around solid waste management. | Engineering Society of Detroit, and The Society for Environmental Science, | Michigan Waste Industries Association | ESD, (313)832-5400 | ESD Headquarters, 100 Farnsworth, Detroit, MI 48202 | 20.0 | Solid Waste Handlers |
| Annual Refresher for Health and Safety for Hazardous Waste Site Investigation Personnel | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | Mitchel Rosen, (201)463-5062 | Program Coordinator, EOSHETC, Dept. of Envir. $Community Med., UMDNJ Robert W. Johnson Med. School, 45 Knightsbridge Dr., Piscataway, NJ 08854 | 8.00 | Workers Under OSHA |
| Annual Refresher on Health and Safety for Hazardous Waste Site Investigation Personnel | OSHA required 8 hours of annual refresher training for employees involved in hazardous waste operations under CERCLA or RCRA | New Jersey/New York Hazardous Materials Worker Training Center, | University of Medicine and Dentistry of New Jersey - Robert Wood Johnson Medical School | Registrar, (201)463-5062 | EOSHETC/DCHE, UMDNJ-Robert Wood Johnson Medical School, 45 Knightsbridge Rd., Piscataway, NJ 08854 | 40.0 | Workers Under OSHA |
| Annual Worker Health and Safety Refresher Course | Provides the 8 hours of refresher training required annually by OSHA for employees engaged in hazardous waste operations. | New Jersey/New York Hazardous Materials Worker Training Center, | National Institute Of Environmental Health Sciences | Registrar, (201)-463-450 | NY/NJ Hazardous Materials Worker Training Center, UMDNJ-Robert Wood Johnson Medical School, 45 Knightsbridge Road, Piscataway, NJ 08854 | 8.00 | Workers Under OSHA |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| ANSUL Spill Control Training | Provides information to identify hazardous materials, choose appropriate response agents, and initiate a proper response to a spill. Hands on training is stressed. | ANSUL Spill Control Products Group, | -0- | Kent W. Smith, 1800-346-3626 | Ansul, Spill Control Training, One Stanton Street, Marinette, WI 54143 | 21.0 | Emergency Responde |
| Application of Aqueous Electroltyte Thermodynamics to Pollution Control Problems | Applying current technology to important problems involving abatement of industrial pollutants. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | Process/Environ. Engineer |
| Applied Groundwater Modeling | Course will focus on the application of modeling pratices through utilization of two thourghly tested simulation models. Software will be provided. | Butler University, International Groundwater Modeling Center | -0- | Paul van der Heijde, (317)283-9458 | International Groundwater Modeling Center, Butler University, 4600 Sunset Avenue, Indianapolis, IN 46208 | 33.0 | Groundwater Treaters |
| Aquatic Toxicity Reduction in Industrial Effluents | This course will prepare the industrial and municipal POTW discharger for the inevitable requirements to monitor for aquatic toxicity. | Center for Professional Advancement, | -0- | , (201)613-4500 | The Center for Professional Advancement, PO Box 964, East Brunswick, NJ 08816 | 21.0 | Wastewater Treaters |
| Aquatic Toxicology and Risk Assessment, 13th Symposium | Not Documented | American Society for Testing and Materials, | -0- | Laurel O'Brian, (215)299-5478 | ASTM, 1916 Race Street, Philadelphia, PA 19103 | 21.0 | Risk Assessors |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Asbestos Abatement for Contract/ Supervisors | Meets the Texas Department of Health requirement for licensure of contractors, supervisors, and owner-operators. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-6682 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 11.0 | Asbestos Handlers |
| Asbestos Abatement for Inspectors | A three day EPA approved course developed in accordance with the EPA model Accrediation Plan for inspector training under AHERA | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management. Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 24.0 | Asbestos Handlers |
| Asbestos Abatement for Management Planners | Course provides training in developing a management plan, exposure, risk assessmsnt, legal liability, and cost estimating. | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 48.0 | Asbestos Handlers |
| Asbestos Abatement Projects for the Roofing Industry | Not Documented | Georgia In: ute of Technology, eorgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 24.0 | Asbestos Handlers |
| Asbestos Abatement: Facility Survey and Building Systems | This course meets the training needs for accreditation as inspectors under the 1986 AHERA. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 32.0 | Asbestos Handlers |
| Asbestos Abatement: Management Planning | This course is EPA/AHERA approved for satisfying training requirements for accreditation as management planners. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 40.0 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Asbestos Abatement: Project Management and Supervision | This EPA/AHERA approved accreditation course combines state-of-the-art theory with hands-on practice in asbestos abatement technology through a problem-solving instructional approach. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 40.0 | Asbestos Handlers |
| Asbestos and Hazardous Materials: Train-the-Trainer | This program provides practical instruction in the design and delivery of the training mandated under AHERA, EPA, OSHA, and DOT regulations. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 32.0 | Other |
| Asbestos Awareness for the Building Trades | Trains participants on how to identify and treat asbestos containing materials. | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 16.0 | General Public |
| Asbestos Handeling: Asbestos Abatement Worker Course | Procedures used in asbestos abatement work including 8 hours of hands-on training. Also health effects of asbestos, personal protection and hygien, safety hazards, air monitoring, and regulations. | Hygeia Inc., Environmental Education Department | -0- | Registrar, (617)890-4999 | Environmental Education Department, Waltham, MA 02154 | 32.0 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Asbestos in the Workplace, Fighting a Killer | Presents information on how to unions and contracts to fight asbestos exposure. | New York Committee For Occupational Safety and Health, | Hunter College School of Environmental Health Sciences | NYCOSH, (212)627-3900 | NYCOSH, 275 7th Ave., 25th Floor, New York, NY 10001 | 5.00 | General Public |
| Asbestos Inspecters Training Course | Provides information to identify and assess the condition of asbestos containing materials. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-6682 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 8.00 | Asbestos Handlers |
| Asbestos Inspectors and Management Planners Refresher Course | Refresher course required annually by the EPA. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-6682 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 8.00 | Asbestos Handlers |
| Asbestos Management and Control Training Courses | A selection of courses dealing with asbestos abatement, planning, training, and awareness. Courses approved by the U.S. EPA. | Institute for Environmental Education, An Asbestos Abatement Services Company | -0- | , (617)935-7370 | Institute for Environmental Education, 208 West Cummings Park, Woburn, MA 01801 | -0- | Asbestos Handlers |
| Asbestos Management Planners Training Course | Helps professionals determine appropiate response actions and implement them. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-6682 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 8.00 | Asbestos Handlers |
| Asbestos Regulation: Current Status and Proposed Changes | Provides a framework for understanding current and proposed regulations and the agencies that enforce them. | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 8.00 | Asbestos Handlers |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Asbestos Training | A variety of courses which Provide Asbestos Hazard Emergency Response Act (AHERA) training which is accredited by the U.S. EPA. | University of Kansas, Division of Continuing Edication | -0- | , (913)491-0181 | University of Kansas, 6600 College Blvd., Suite 315, Overland Park, KS 66211-1522 | -0- | Asbestos Handlers |
| Asbestos Training Courses | A selection of courses dealing with asbestos assessment and abatement in buildings. | The Environmental Institute, | -0- | Monica Scarbrough, (404)425-2000 | The Environmental Institute, Cobb Coporate Center/300, 350 Franklin Rd., Marietta, GA 30067 | -0- | Asbestos Handlers |
| Asbestos Training Courses, 1989 | 7 different courses and 3 refresher courses that deal with worker, contractor, and supervisor abatement training, air sampling procedures, inspection procedures, and hazard communication awareness. | Lehr Training Institute, Center for Environmental Education | T.G. Environmental Company | , (714)259-1575 | Lehr Training Institute, Inc., Center for Environmental Education, 1431 Warner Avenue, Tustin, CA 92680 | -0- | Asbestos Handlers |
| Asbestos Training: AHERA Awareness Training Course, 16 Hour | Introduces asbestos and asbestos containing building materials (ACBM), procedures for working around ACBM, health effects associated with asbestos, and personal protection. | Hygeia Inc., Environmental Education Department | -0- | Registrar, (617)890-4999 | Environmental Education Department, 303 Bear Hill Rd., Waltham, MA 02154 | 16.0 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Asbestos Training: Airborne Asbestos Sampling and Evaluation Techniques; NIOSH 582 Equivalency Course | Asbestos sampling procedures and fiber counting techniques. Includes a hands-on laboratory. | Hygeia Inc., Environmental Education Department | -0- | Registrar, (617)890-1058 | Environmental Education Department, 303 Bear Hill Rd., Waltham, MA 02154 | 40.0 | Asbestos Handlers |
| Asbestos Training: Bulk Sample Analysis for Asbestos: Polarized Light Microscopy | History and development of the polarized light microscopic technique and the theory behind it. Hands-on laboratory exercises included. | Hygeia Inc., Environmental Education Department | -0- | Registrar, (617)890-4999 | Environmental Education Department, 303 Bear Hill Rd., Waltham, MA 02154 | 40.0 | Asbestos Handlers |
| Asbestos Training: Respirator Fit Testing Instruction | Qualitative fit testing for half-mask and full-face respirators. | Hygeia Inc., Environmental Education Department | -0- | Registrar, (617)890-4999 | Environmental Education Department, 303 Bear Hill Rd., Waltham, MA 02154 | -0- | Asbestos Handlers |
| Asbestos Training: Supervisor/Foreperson Course | Procedures used in asbestos abatement work including 8 hours of hands on training. Instruction of insurance & liability issues, recordkeeping,contract specifications & general supervisory techniques. | Hygeia Inc., Environmental Education Department | -0- | Registrar, (617)890-4999 | Environmental Education Department, 303 Bear Hill Rd., Waltham, MA 02154 | 40.0 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Asbestos Training; AHERA Awareness Training Course, 2 Hour | Participants will learn what asbestos is, the various forms and uses of asbestos, and the health effects associated with asbestos exposure. | Hygeia Inc., Environmental Engineering Department | -0- | Registrar, (617)890-1058 | Environmental Engineering Department, 303 Bear Hill, Waltham, MA 02154 | 2.00 | Asbestos Handlers |
| Asbestos Worker Refresher Training | Presents state of the art techniques that result in minimal fiber release and exposure. Annual course is required to maintain Texas Department of Health registration. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-6682 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 8.00 | Asbestos Handlers |
| Asbestos Worker Training | Presents state of the art techniques that result in minimal fiber release and exposure. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-6682 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 24.0 | Asbestos Handlers |
| Atmospheric Diffusion Modeling | Emphasis will be placed on using atmospheric diffusion models. in process stack design to limit groundlevel concentrations to meet air pollution regulations. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | Other |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Automated Environmental Information Management | Planning considerations and how a company should go about designing, developing and implementing an automated system | Center for Energy and Environmental Management (CEEM), | -0- | , (703)250-5900 | CEEM, Box 200, Fairfax Station, VA 22039 | 7.00 | Other, Management |
| Backflow Prevention Technician Training Institute | Presents guidelines for acceptable practices for testing, annual inspection, and repair of backflow prevention devices used in cross-connection control programs. | University of Florida, Continuing Education Center, TREEO Center | Florida Section of American Water Works Association | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 40.0 | Water Resource Engineer |
| Basic Ground Water | -0- | U.S. EPA, OSWER | -0- | J. Thornhill, (405)332-8800 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Groundwater Treaters |
| Beneficial Use of Municipal and Industrial Sludge | Sludge recycling, new federal regulations, use of non-municipal sludges and other by-products, contract services and economic factors, and present case histories of projects. | University of Wisconsin-Milwaukee, College of Engineering and Applied Science, Center for Continuing Engineering Education | -0- | Stephen J. Scott, (414)227-3200 | Non-Credit Registration Office, UW-Milwaukee, 929 N. 6th St., Milwaukee, WI 53203 | 16.0 | Process/Environ. Engineers |
| Biological Nitrogen and Phosphorus Removal: The Florida Experience II | State-of-the-art training in design and operation of biological nutrient control systems. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 16.0 | Water Resource Engineer |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Biological Treatment of Contaminated Soil and Groundwater | Discusses contamination sources and movement, regulatory requirements, containment, sampling and bioreclamation. | Center for Professional Advancement. | -0- | Registrar, (201)613-4500 | The Center for Professional Advancement, P.O. Box 964, East Brunswick, NJ 08816-0964 | 24.0 | Remediation Workers |
| Bioremediation of Hazardous Waste Sites | -0- | U.S. EPA, OSWER | -0- | F. Kremer, (513)569-7346 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Remediation Workers |
| Bioremediation of Subsurface Environments | -0- | U.S. EPA, OSWER | -0- | J. Thornhill, (405)332-8800 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Remediation Workers |
| Biotechnology and Waste Treatment | Environmental, industrial, and economic development aspects of biotechnology. Also a tour of the MBI research facility and applied biotechnology pilot plant facilities. | Michigan Biotechnology Institute. | The Michigan Association of Environmental Professionals | Paul Ruel (MAEP), (313)842-4600 | Paul Ruel (MAEP), St. Mary's Peerless Cement, 9333 Dearborn Street, . | 2.00 | Process/Environ. Engineers |
| BRAVO- A PC Program for Quantitative Risl Assessment | Training on how to use BRAVO. Includes a complimentary copy of BRAVO and IRRAS-a user-friendly, state of the art, fault free graphics program. | JBF Associates, Inc., | -0- | Course Administrator, (615)966-5232 | JBF Associates, Inc., Technology Drive, 1000 Technology Park Center, Knoxville, TN 37932-3341 | -0- | Risk Assessors |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Building Inspection and Management Planning for Asbestos | Designed to satisfy the accreditation requirements contained in the 1986 AHERA. For AHERA accreditation as an inspector and management planner, you must complete the 5 day course and exam requirements | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 40.0 | Asbestos Handlers |
| Building Inspection for Asbestos | Designed to satisfy the accreditation requirements contained in the 1986 AHERA. For AHERA accreditation as an inspector, you must complete the 3 day course and exam requirements. | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 24.0 | Asbestos Handlers |
| CAMEO II: Computer-Aided Management of Emergency Operations - Apple MacIntosh Version | Hands-on experience with CAMEO. Cameo allows quick acccss to data on chemical substances, identifies areas affected by toxic chemical releases, plots the course of toxic fumes and projects scenarios. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU, Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 40.0 | Emergency Responders |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| CAMEO II: Computer-Aided Management of Emergency Operations - Dos Version | Hands-on experience with CAMEO. Cameo allows quick access to data on chemical substances, identifies areas affected by toxic chemical releases, plots the course of toxic fumes and projects scenarios. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU, Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 16.0 | Emergency Responders |
| CERCLA Orientation | -0- | U.S. EPA, OSWER | -0- | M. Suit, (202)475-6647 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Compliance Officers |
| Certificate in Hazardous Waste Studies | Intensive study in hazardous waste to meet rapidly increasing technology and new legislation | Findlay College, Office of Hazardous Waste Studies | -0- | Captain John W.Hosty, (419)424-4572 | Director, Findlay College, 1000 North Main Street, Findlay, OH 45840 U.S.A. | 50.0 | General HW Personnel |
| Certificate Program in Hazardous Materials Management | Comprehensive, parctical course of study in hazardous materials management | University of California, University Extension | -0- | Deborah Dobin, (916)752-6021 | University Extension, University of California, Davis, CA 95616 U.S.A. | -0- | General HW Personnel |
| Certification Program in Hazardous Materials Management | Engineering control and management of hazardous materials | Oklahoma State University, Engineering Extension | -0- | Jacki Price, (405)744-5714 | OSU Engineering Extension, 512 EN, Stillwater, OK 74078 U.S.A. | -0- | General HW Personnel |
| Certified Hazardous Materials Manager | Application of engineering and managerial technology to identify, evaluate and eliminate or reduce risks, involving conditions related to hazardous materials | Institute of Hazardous Material Management, | -0- | , (301)984-8969 | Institute of Hazardous Materials Management, 8009 Carita court, Bethesda, MD 20817 U.S.A. | -0- | General HW Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Certified Hazardous Materials Manager (CHMM) Review Course | Review for the Certified Hazardous Material Manager Examination | Wayne State University, Office of Environmental Health and Safety | -0- | Robert W. Powitz, (313)577-1200 | 625 Mullett, Detroit,, MI 48226 U.S.A. | 13.0 | General HW Personnel |
| ChemADVISOR Briefing: The OSHA Proposed Standard for Occupational Exposure to Bloodborne Pathogens | Provides and overviews information about OSHA's proposed standard to protect laboratory and hospital workers from exposure to HBV and HIV. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 4.00 | Hospital Personnel |
| ChemADVISOR Canadian WHMIS and Hazardous Products Act: A one-day seminar covering the Canadian Workplace Hazardous Materials Information System | Canadian WHMIS legislation and Hazardous Products Act for the determination of a controlled product, its labeling and information needed in a Canadian Materials Safety Data Sheet and more. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | Safety Personnel |
| ChemADVISOR Chemical/Process Modules: A four-hour seminar based on the identification and recognition of health and other hazards of chemicals and chemical processes | This course supplements the ChemADVISOR Hazard Communication course by providing information about the hazards of specific materials or processes of interest to the participants. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 4.00 | Safety Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| ChemADVISOR Handling Toxic Materials in Laboratories | Developing and implementing a program for compliance with the OSHA Standard for Occupational Exposure to Toxic Substances in Laboratories. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | Safety Personnel |
| Chemical Emergency and Hazardous Waste Worker Training | Includes both classroom and hands-on training to help workers protect their safety and health | International Chemical Workers Union, | United Steel Workers of America & The University of Cincinnati | , (513)621-8882 | ICWU Training Center, 105 West Fourth Street, Suite 315, Cincinnati, OH 45202 | -0- | General HW Personnel |
| Chemical Plant Accidents: A Workshop on Causes and Prevention | The course stresses the practical and basic causes of actual industrial accidents by studying numerous case histories and offers recommendations to avoid similar accidents. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | Safety Personnel |
| Chemistry for the First Responder | Basic instruction to meet mandated training requirements for all government employees who respond to hazardous material incidents. | University of Florida, Continuing Education Center, TREEO Center | Florida Department of Community Affairs | John Beaudry, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 7.00 | Emergency Responders |
| Chemistry of Hazardous Waste | Presents basic chemistry as related to hazardous waste. It is designed for non-technical personnel. | New Jersey Institute of Technology, Division of Continuing Education | -0- | Registrar, (201)596-3060 | New Jersey Institute of Technology, Division of Continuing Education, Newark, NJ 07102 | 6.50 | Other, Nontechnical Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Chemodynamics, Transport and Fate of Chemicals in the Environment | Relationship between physical and chemical properties and transport, their persistance in the biosphere, their partitioning in biota, and toxilogical and epidemiological forcasting | AIChE, Continuing Education | -0- | AIChE Registrar, (212)705-7526 | Continuing Education Department, AIChE, 345 E. 47th Street, New York, NY 10017 | 14.0 | Other, General Scientists |
| Chlorination Equipment Repair and Troubleshooting | This course addresses chlorinator operation and maintenance. Instructors demonstrate how to disassemble several chlorinators. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Water Resource Engineer |
| Chlorine Handling and Containment | Proper chlorine handling techniques. Demonstrations and hands-on practice in repairing a simulated leak using Chlorine Emergency Repair Kits A & B. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Water Resource Engineer |
| Chlorine Safety: Technician Training and Certification | Reacting to chlorine emergencies, diagnosing the severity of problems and planning and implementing remedial actions. Basic maintenance, use of airpacks, and use of A & B emergency repair kits. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 24.0 | Water Resource Engineer |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Chlorine Seminar | Safe use of chlorine in water and wastewater treatment processes. Chlorine's chemical behavior and its reaction. New chemical-specifi c regulations and their impact on chlorine usage. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Water Resource Engineer |
| CHMM Review Course and Certification Examination | Academy of Hazardous Materials Management | The Chicago Metropolitan Chapter of the Academy of Hazardous Materials Management, | The Center for Hazardous Waste Management at IIT Center, The Office of Continuing Education at Illinois Institute of Technology, and the Institute of Hazardous Materials Management | Jeff Perl, (312)677-2436 | Illinois Institute of Technology, Office of Continuing Education, 226 SB, 10 West 31st Street, Chicago, IL 60616 U.S.A. | 23.0 | General HW Personnel |
| Clay Liners and Covers for Waste Disposal Facilities | Presents latest research findings concerning construction, performance, and testing of clay liners and covers | University of Texas at Austin, Civil Engineering Department | -0- | Dr. David Daniel, (512)471-3506 | Continuing Engineering Studies, College of Engineering, Cockrell Hall 10.324, University of Texas at Austin, Austin, TX 78712 | 15.0 | Landfill Operators |
| Clean Air Regulation Briefing | Examines emerging clean air regulations under the Bush administration. | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 16.0 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Clean Water Course | Provides the latest information on legislative, judicial, and regulatory developments regarding industrial and municipal wastewater discharge. | Executive Enterprises, Inc., | -0- | , 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010 | 11.0 | Wastewater Treaters |
| Clean Water Regulation Briefing | Topics include: developments in permitting procedures, pretreatment-stormwater runoff, clean water act, bio monitoring and toxicity based limits, innovative technologies, and permit negotiation. | Executive Enterprises, Inc., | -0- | Registrar, (800)831-8333 | Executive Enterprises, Inc., West 21st Street, New York, New York 10010-6904 | 14.0 | Water Resource Engineer |
| Collection, Treatment and Disposal of Liquid Wastes from the Petroleum and Petrolchemical Industries | Not Documented | University of Texas at Austin, Continuing Engineering Studies | -0- | Registrar, (512)471-3396 | Continuing Engineering Studies, College of Engineering, Cockrell Hall 10.324, University of Texas at Austin, Austin, TX 87812 | 14.0 | Incinerator Operators |
| Comar Hazard Communication Trainer Assistance Program | Uses a train the trainer approach to prepare trainers and at-risk employees to use the DoD/Federal Hazard Communication Training Program (FHCTP). | Comar Associates, | | Ms. Lynne Elliott, (202)829-2879 | Comar Associates, 106 Irving St., N.W., Suite 311, Washington, D.C. 20010 | -0- | Industrial Hygienists |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Community Relations in Superfund: Concepts and Skills for Response Staff | -0- | U.S. EPA, OSWER | -0- | M. Suit, (202)475-6647 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Remediation Workers |
| Community Right to Know | Provides information on what the laws are, compliance strategy, chemical inventory, enforcement, and case studies. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 6.00 | Compliance Officers |
| Compliance With TSCA Regulations Course | Not Documented | Government Institutes, Inc., | -0- | Sheila Coffman, (301)251-9250 | Government Institutes, Inc., 966 Hungerford Dr., Suite 24, Rockville, MD 20850-1714 | 14.0 | Compliance Officers |
| Complying with AB 2588 - The California Air Toxics "Hot Spots" Information and Assessment Act | Provides information on what the laws are, who needs to comply, and how to prepare emmisions reports. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 6.00 | Compliance Officers |
| Complying With New Standards for Treating Toxic Wastes and Drinking Water | Provides the latest information on the development of standards for treating toxic wastes, residual sludges, and drinking water. | University of Wisconsin-Madison, College of Engineering - Dept. of Engineering Professional Development | -0- | Eng'g. registration, 1800-262-6243 | Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 | 14.0 | Compliance Officers |
| Computer Implementation of SARA Title III/Form R | Data gathering, computer processing and reporting for the Toxic Release Inventory Form R and SARA Title III for the July 1990 Report. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Computer Implementation of your EPA/OSHA Right-to-Know Program | Data gathering, computer processing and reporting for compliance with SARA Title III and OSHA Hazard Communication Act: March 1990 Report. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | Compliance Personnel |
| Conference and Exhibition on Pollution Control Technologies | Limiting environmental liabilities on "Toxic Real Estate", Radon and its impact on human health and Real Estate, an update on Underground Storage Tanks, and Hydrocarbon contamination and clean up. | ACOME AND ASSOCIATES LTD. Pollution Control Specialists, | Zeff and Zeff and Materna, IEP, Inc., Geosoft, Testing Engineers and Consultants, Inc., Fixation and Treatment Technologies, Ltd., and Argus Pressure Grouting, Inc. | Registrar, (313)258-1530 | ACOME INSTITUTE OF ENVIRONMENTAL MANAGEMENT, P.O. Box 124, Bloomfield Hills, MI 48013 | 32.0 | Compliance Personnel |
| Contract Administ. Training for Project Officers, Work Assignment Managers and Delivery Order Officers | -0- | U.S. EPA, OSWER | -0- | S. Green, (202)475-6678 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | HW Site Supervisors |
| Contract Administ. Training for Supervisors and Managers | -0- | U.S. EPA, OSWER | -0- | S. Green, (202)475-6678 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | HW Site Supervisors |
| Corporate Waste Minimization | A senior spokesperson for Ford Motor Company will speak on the Company's waste minimization program. | Engineering Society of Detroit, The Society for Environmental Science | -0- | Registrar, (313)832-5400 | ESD, 100 Farnsworth, Detroit, MI 48202 | 1.00 | General HW Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Cross-Connection Control 'Program and Ordinance Workshop' | Topics include: an introduction to backflow prevention and cross-connection control, essentials of a cross-connection control program, model programs - methods & devices, and liability. | University of Florida, Continuing Education Center, TREEO Center | Florida Section of American Water Works Association | Registrar, | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 16.0 | Water Resource Engineer |
| Current Health and Safety Issues for the Campus Environment | Designed to help academic institutions manage their environment in order to reduce liability, avoid regulatory citations, and mitigate negitive public relations. | Quality Safety Services, | | , (615)687-7097 | Quality Safety Services, 1412 Farrington Drive, Knoxville, TN 37923 | -0- | Safety Personnel |
| Current Issues in PCB Compliance | The course tells how to prepare for a PCB inspection from the EPA | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 16.0 | Compliance Personnel |
| Customized CERCLIS Reporting | Available upon request | U.S. EPA, OSWER | -0- | S. Matthews, (202)475-6127 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., CIncinnati, OH 45268 | -0- | Compliance Officers |
| Data Quality Objectives (DQO) | -0- | U.S. EPA, OSWER | -0- | S. Green, (202)475-6678 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Other |
| Designing Asbestos Response Actions | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 32.0 | Asbestos Handlers |
| DuPont Fundamentals of RCRA Seminar | Teaches hands-on methods for complying with RCRA completely and economically. | DuPont Environmental Management Services, | | , 1800-248-7020 | DuPont Company, Environmental Management Services, Montgomery Building, Room 225-A, P.O. Box 80800, Wilmington, DE 19885 | 18.0 | Compliance Personnel |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| DuPont Groundwater Hydrology Seminar | Presents information on how a groundwater system functions, symptoms of groundwater pollution, sampling methods, and how to evaluate groundwater consultants and their reports. | DuPont Environmental Management Services, | | , 1800-248-7020 | DuPont Company, Environmental Management Services, Montgomery Building, Room 225-A, P.O. Box 80800, Wilmington, DE 19885 | 14.0 | Groundwater Treaters |
| DuPont SARA Title III Seminar - Overview of Title III for Business and the Community | Presents a comprehensive study of the law itself - the facilities and substances it covers, its reporting requirements, and its timetable for compliance. | DuPont Environmental Management Services, | | , 1800-248-7020 | DuPont Company, Environmental Management Services, Montgomery Building, Room 225-A, P.O. Box 80800, Wilmington, DE 19885 | 7.00 | Compliance Personnel |
| DuPont SARA Title III Seminar - Section 313 Compliance Procedures | Provides in depth discussion on Section 313 compliance information. | DuPont Environmental Management Services, | | , 1800-248-7020 | DuPont Company, Environmental Management Services, Montgomery Building, Room 225-A, P.O. Box 80800, Wilmington, DE 19885 | 7.00 | Compliance Personnel |
| DuPont Waste Minimization Training Seminar | Presents information on how to develope and put into pratice a waste minimization scheme. | DuPont Environmental Management Services, | | , 1800-248-7020 | DuPont Company, Environmental Management Services, Montgomery Building, Room 225-A, P.O. Box 80800, Wilmington, DE 19885 | 14.0 | Process/Environ. Engineers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Effective Techniques for Contaminated Groundwater Treatment | Presents techniques that have been successful in detecting and treating contaminated groundwater and restoring it to drinking water quality. | University of Wisconsin-Madison, College of Engineering - Dept. of Engineering Professional Development | -0- | Eng'g. Registration, 1800-262-6243 | Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 | 14.0 | Groundwater Treaters |
| Effective Techniques for SARA Section 313 Data Management and Reporting | Presents proven techniques on how to manage data collection efforts, calculate releases and treatment efficiences, and avoid common errors. | Center for Energy and Environmental Management, | -0- | , (703)250-5900 | CEEM, P.O. Box 200, Fairfax Station, VA 22039 | 12.0 | Compliance Officers |
| Emergency Handling of Chlorine | Basic instruction to meet mandated training requirements for all government employees who respond to hazardous material incidents. | University of Florida, Continuing Education Center, TREEO Center | Florida Department of Community Affairs | John Beaudry, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 7.00 | Emergency Responders |
| Emergency Preparedness Seminar | Concepts and elements found in emergency preparedness programs for chemical/process facilities. State regulations will also be discussed. | Stone and Weber Engineering Corporation, Chemical Plant Safety Program | -0- | Kristina Levins, (609)482-3270 | Stone and Webster Engineering Corporation, 3 Executive Campus, PO Box 5200, Cherry Hill, NJ 08034 | 16.0 | Safety Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Emerging Issues in Environmental Management | This course will examine legal aspects of environmental data management, introduce software available to facilitate the work of environmental managers, and study crisis and non-crisis techniques. | University of Wisconsin-Madison, Department of Engineering Professional Department | -0- | Registrar, (608)262-1299 | Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, Wisconsin 53706 | 11.0 | General HW Personnel |
| Energy fron Biomass and Wastes | Presents methods of supplying energy from land and water based biomass as well as organic wastes. | Institute of Gas Technology, | | Susan Robertson, (312)567-3881 | Institute of Gas Technology, 3424 South State Street, Chicago, IL 60616 | 36.0 | Process/Environ. Engineers |
| Engineers and Consultants as Witnesses: Tips on Testifying in Environmental and Engineering Cases | Provides engineering and environmental professionals with a roadmap of the litigation process. Learn how to testify effectively in environmental and engineering cases. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | General HW Personnel |
| Environment '89 Seminar | Designed for professionals involved in environmental compliance. Exhibits will be open | Federation of Environmental Technologists, | | , (414)251-8163 | Federation of Environmental Technologists, P.O. Box 185, Milwaukee, WI 53201 | 13.0 | Compliance Officers |
| Environmental Audit | Management , Planning, Regulatory requirements, and conducting the auoit | Fedral Publication Inc., A Longman Group Company | -0- | J. K. Van Wycks, (202)337-7000 | Fedral publication Inc., 1120 20th St., NW, Washington, D.C. 20036 U.S.A. | 12.0 | Environmenta l Auditors |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Environmental Audits Course: Protecting Your Company and Yourself | Learn the how and why of auditing your company's environmental compliance | Government Institutes, Inc., | | , (301)251-9250 | Government Institutes, Inc., 966 Hungerford Drive, #24, Rockville, MD 20850 | 13.0 | Environmenta l Auditors |
| Environmental Audits: Protecting Your Company and Yourself | Topics include: legal requirements for doing audits, how to train auditors, how to protect confidentiality, what tools you need for an audit, and additional benefits of audits. | Government Institutes Inc., | Hart Environmental Management Corporation | Registrar, (301)251-9250 | Government Institutes Inc., 966 Hungerford Drive #24, Rockville, MD 20850 | 16.0 | Environmenta l Auditors |
| Environmental Claims and Litigation Conference, Second Annual | Strategies, tactics and techniques for prevention, negotiation, settlement, and litigation of environmental claims. | Executive Enterprises, Inc., | -0- | Registrar, (800)831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, New York 10010-6904 | 16.0 | Risk assessors |
| Environmental Cleanup Responsibilit y Act | Course will familiarize New Jersey property owners and others involved in the transfer of properties with the requirements of ECRA | New Jersey Institute of Technology, Division of Continuing Education | -0- | Registrar, (201)596-3060 | New Jersey Institute of Technology, Division of Continuing Education, Newark, NJ 07102 | 6.00 | Compliance Personnel |
| Environmental Health & Safety Law | Overview of environmental regulations for hazardous materials and hazardous wastes | Institute for Applied Management and Law, Inc., | -0- | , (714)760-1700 | Institute for Applied MAnagement and Law, Inc., 510 Newport Center Dr., Suite 1060, Newport Beach, CA 92660 U.S.A. | 31.0 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Environmental Insurance Law Institute | Evaluates the key issues, litigation strategies, and litigation tactics in environmental insurance actions. | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 16.0 | Risk Assessors |
| Environmental Law | Aquisition of knowledge and skills to develop proficiency as a practitioner; provision of information on recent legal developments | American Law Institute-American Bar Association, Committee on Continuing Professional Education | The Environmental Law Institute and The Smithsonian Institution | Alexander Hart, (800)CLE-NEWS | Courses of study, ALI-ABA, 4025 Chestnut Street, Philadelphia, PA 19104 U.S.A. | 17.5 | Lawyers |
| Environmental Laws and Regulations Compliance Course | A comprehensive analysis of the major environmental statutes and regulations that effect business - especially under the Bush administration. | Government Institutes, Inc., | | (301)251-9250 | Government Institutes, Inc., 966 Hungerford Drive # 24, Rockville, MD 20850 | 17.5 | Compliance Personnel |
| Environmental Laws and Regulations: 1989 Update Course | A complete update on new and forthcoming regulations that impact your compliance programs. | Government Institutes, Inc., | -0- | Registrar, | Government Institutes Inc., 966 Hungerford Drive #24, Rockville, MD 20850-1714 | 14.0 | Compliance Personnel |
| Environmental Legislation Update | Update on CWA Amendments, SARA Title III, and Right-To-Know Regulations. | South Carolina Environmental Training Center, | Trident Technical College | Susan McGartlin, 1800-221-8711 | South Carolina Environmental Training Center, Sumter Area Technical College, 506 North Guignard Drive, Sumter, NC 29150 | 7.00 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Environmental Management Roundtable | Discussion of common concerns of environmental management, where special challenges facing those charged with environmental management responsibilities will be discussed. | Government Institutes, Inc., | -0- | Registrar, (301)251-9250 | Government Institutes, Inc, 966 Hungerford Drive #24, Rockville, MD 20850 | 20.0 | Other |
| Environmental Management Software Seminar | Provides a comprehensive exposure and hands-on review of several of the latest environmental management software systems | Waste Systems Institute of Michigan, Inc., | -0- | , (616)771-6620 | Waste Systems Institute of Michigan, Inc., 400 Ann Street NW, Suite 201-A, Grand Rapids, MI 49504 | 11.5 | Compliance Personnel |
| Environmental Quality Assurance | Presents procedures for quality assurance planning, data management, and reporting for HW site investigations. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 7.00 | HW Site Supervisors |
| Environmental Regulation and Auditing of Federal Facilities | Provides information on how prepare for a federal facility environmental audit. | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 16.0 | Environmental Auditors |
| Environmental Regulation Conference | An update of developments at the federal level and state/regional issues. | Executive Enterprises, Inc. | -0- | , (800)831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010 U.S.A. | 18.5 | Compliance Personnel |
| Environmental Regulation Course | A basic comprehensive course on environmental regulation. | Executive Enterprises, Inc., | -0- | Registrar, (800)831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 24.0 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Environmental Regulations and Compliance Course - Fifteenth Annual | A comprehensive two day seminar on current environmental requirements and compliance. | Professional Seminar Associates, Inc. | -0- | , (201)232-2455 | Program Director, Institute for Comtemporary Corporate Issues, 515 Coleman Place, P.O. Box 314, Westfield, NJ 07090 | 14.0 | Compliance Personnel |
| Environmental Regulations for Paints and Coatings Facilities | Presents information about the most inportant consequences of recent regulation and provides participants with the tools to bring coatings facilities into compliance. | University of California - Berkeley, Continuing Education in Engineering | -0- | Richard Tsina, (415)642-4151 | Continuing Education in Engineering, University Extension, University of California, 2223 Fulton Street, Berkeley, CA 2223 | 22.0 | Compliance Personnel |
| Environmental Risk Assessment | -0- | U.S. EPA, OSWER | -0- | Registrar, (513)569-7537 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Risk Assessors |
| Environmental Training: Response for First Responders | Environmental training; legal | Government Institutes, Inc., | -0- | Registrar, (301)251-9250 | Government Institutes, Inc, 966 Hung Cincinnati, OH 45268 | 14.0 | Risk (513)569-7537 |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Hazardous Materials Training and Technical Assistance | A selection of 17 mini-courses dealing with different areas of occupational safety/waste management. Each course is scheduled and billed seperatly. | Michigan State University, Community Development Programs - Lifelong Education Programs | Michigan Department of Labor - Safety Education and Training Program | Elivabeth Augenstein, (517)355-0100 | Community Development Programs, Michigan State University, 42 Kellogg Center, East Lansing, MI 48824 | -0- | General HW Personnel |
| Hazardous Materials Treatment Technologies | -0- | U.S. EPA, OSWER | -0- | Registrar, (513)569-7537 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Process/Environ. Engineers |
| Hazardous Materials, Chemicals, Substances & Waste Training & Compliance | Mandatory training requirements under EPA, DOT and OSHA using the updated Transportation Skills Programs Audio-Visual Taraining Programs (27 Programs) | Hazardous Materials Publishing Co., | -0- | (215)683-6721 | Hazardous Materials Publishing Co., P.O. Box #308 - 243 West Main Street, Kutztown, PA 19530 | -0- | Compliance Officers |
| Hazardous Materials, Industrial Health and Safety | Short courses in plant spill response, off site spill response, emergency response, management of hazardous materials, health and safety training and professional protection. | Findlay College, Office of Hazardous Waste Studies | -0- | Captain John W.Hosty, (419)424-4572 | Director, Findlay College, 1000 North Main Street, Findlay, OH 45840 U.S.A. | -0- | Safety Personnel |
| Hazardous Materials/ Dangerous Goods Transportation Seminars | Provides the initial hazardous waste transportation training required by federal law. | National Safety Council, | -0- | Tim Kennedy, (312)527-4800 | National Safety Council, 444 N. Michigan Ave., Chicago, IL 60611 | -0- | Transporters |

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|---|---|---|---|---|---|---|---|
| Hazardous Materials/ Waste manager Training Course | Environmental Rules and Regulations (RCRA, TSCA, CERCLA, OSHA and others) | University of Alabama, College of Continuing Studies | The Alabama Association of Water Pollution Control | Peggy Reese, (800)452-5971 | University of Alabama, College of Continuing Studies, Box 870388, Tuscaloosa, AL 35487 U.S.A. | 12.0 | Compliance Officers |
| Hazardous Materials: Handling and Disposal | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | Ramona Cayuela, (213)743-6383 | Director, Continuing Education, Univ. of Southern California, Professional Programs, 3500 S. Figueroa Street, Suite 202, Los Angeles, CA 90007 | -0- | General HW Personnel |
| Hazardous Substance Transportation Workshop | Not Documented | University of Wisconsin, Engineering Professoinal Development | -0- | Michael Waxman, (800)262-6243 | University of Wisconsin, Engineering Professional Development, 432 N. Lake Street, Madison, WI 53706 | 14.0 | Transporters |
| Hazardous Substances Insurance Conference | Provides a detailed examination of the latest developments effecting insurers and insureds. | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 16.0 | Risk Assessors |
| Hazardous Substances Training | Hazardous waste worker training, superfund basic research programs | NIOSH Educational Resource Centers, | -0- | . | National Emergency Training Center, Emmitsburg, MD U.S.A. | 15.0 | General HW Personnel |
| Hazardous Waste Business '89 | A selection of short courses revolving around starting or enhanceing a hazardous waste management business. | Hazardous Materials Intelligence Report, | | Ben Hughes, 1800-666-4430 | Hazardous Waste Business '89, P.O. Box 535, Harvard Square Station, Cambridge, MA 02238 | 13.0 | Consultants |
| Hazardous Waste General Site Worker Training | Satisfies the 40 hour OSHA requirements for general hazardous waste site worrkers. | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 40.0 | Workers Under OSHA |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Hazardous Waste Incident Response | Not documented - Fees to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Washington Educational Resource Center & U.S. Department of Health and Human Services | Jan Stewart, (206)543-1069 | Northwest Center for Occupational Health & Safety, Dept. of Environmental Health, Univ. of Washington, SC-34, Seattle, WA 98195 | C | Emergency Responders |
| Hazardous Waste Incinerator Inspection Training | -0- | U.S. EPA, OSWER, | -0- | E. Chow, (202)475-9329 | U.S. EPA , 26 W. Martian L. King Dr., Cincinnati, OH 45268 | -0- | Inspectors |
| Hazardous Waste Management | Hazardous waste management under RCRA | Environmental Resource Center, | -0- | , (800)SERC-ERC | Environmental Resource Center, 608 Southview Circle, Fayetteville, NC 28311 U.S.A. | 7.00 | Compliance Personnel |
| Hazardous Waste Management | Regulations and technology for personnel with responsibility for regulatory compliance programs, especially RCRA permitting strategy | Center for Professional Advancement, | | , (201)238-1600 | Center for Professional Advancement, P.O. Box 964, East Brunswick, NJ 08816 | 25.0 | Compliance Officers |
| Hazardous Waste Management - New Markets, Technologies, and Services | Shows how to capitalize on new market trends and opportunities in the hazardous waste industry. | Frost and Sullivan, Inc., | Total Environmental Assessment and Management, Inc. | John D'Alto, (212)233-1080 | Frost & Sullivan, Inc., Conference Dept., 106 Fulton St., New York, NY 10038 | 14.0 | Consultants |
| Hazardous Waste Management and Waste Water Treatment | Provides interaction between instructors and attendees and discussion of particular, individual problems currently being experienced or anticipated. | Vanderbilt University, Dept. of Civil and Environmental Engineering | -0- | Margaret Manofsky, (615)322-2720 | Dept. of Environmental and Civil Engineering, Vanderbilt University, P O Box 6222, Station B, Nashville, TN 37235 | 12.0 | Water Resource Engineer |

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|---|---|---|---|---|---|---|---|
| Hazardous Waste Management and Wastewater Treatment | In situ treatment of contaminated soil and rock, operation control and management of activated sludge plants, process design:Part I-Bilogical treatment and wastewater engineering. | Technomic Publishing Company, Inc., | Vanderbilt University | | TECHNOMIC Publishing Company, Inc., 851 New Holland Ave., Box 3535, Lancaster, PA 17604 U.S.A. | 20.0 | Water Resource Engineer |
| Hazardous Waste Management Course | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Texas Educational Resource Center & U.S. Department of Health and Human Services | Mary Nickolaus, (713)792-4604 | Director, Continuing Education, Southwest Center for Occupational Health And Safety, P.O. Box 20186, Houston, TX 77225 | -0- | General HW Personnel |
| Hazardous Waste Management Course | Provides the basic working knowledge of the rules and regulations covered by RCRA | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-3418 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 20.0 | Compliance Personnel |
| Hazardous Waste Management for Small Quantity Generators | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | Ramona Cayuela, (213)743-6383 | Director, Continuing Education, Univ. of Southern California, Professional Programs, 3500 S. Figueroa Street, Suite 202, Los Angeles, CA 90007 | -0- | Small Quantity Generators |
| Hazardous Waste Management Refresher Course | Provides a review of the basic working knowledge of the rules and regulations covered by RCRA | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-3418 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 8.00 | Compliance Personnel |

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|---|---|---|---|---|---|---|---|
| Hazardous Waste Management Under RCRA | Systematic approach to understanding and compling with today's RCRA regulation | Environmental Resource Center. | -0- | , (800)SERC-ERC | 608 Southview Circle, Fayetteville, NC 28311 U.S.A. | -0- | Compliance Personnel |
| Hazardous Waste Management Update Course | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Texas Educational Resource Center & U.S. Department of Health and Human Services | Mary Nickolaus, (713)792-4604 | Director, Continuing Education, Southwest Center for Occupational Health And Safety, P.O. Box 20186, Houston, TX 77225 | -0- | General HW Personnel |
| Hazardous Waste Management, the Superfund Program | Not Documented | Duke University, Forestry & Environmental Studies | -0- | Registrar, (919)684-2135 | Duke University, Forestry & Environmental Studies, 206-B Biological Sciences, Durham, NC 27706 | 28.0 | Compliance Personnel |
| Hazardous Waste Measurements | Field and lab technologies used for the measurments of hazardous wastes | University of Michigan, School of Public Health, Department of Environmental and Industrial Health | -0- | , (313)763-4265 | Hazardous WasteProgram, 2512 School of Public Health, The University of Michigan, Ann Arbor, MI 48109 U.S.A. | 14.5 | Lab Technicians |
| Hazardous Waste Minimization | Planning and developing a hazardous waste minimization program for compliance with federal RCRA and Michigan requirements. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU, Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | General HW Personnel |
| Hazardous Waste Minimization Process Seminar | Explains waste minimization processes for different industries. Also discusses several treatment technologies | University of Louisville, Center for Continuing Education | Kentucky Natural Resourses and Environmental Protection Cabinet | , 1800-334-8635 | Center for Continuing Education, 120 Houchens Building, University of Louisville, Louisville, KY 40292 | 7.00 | Process/Environ. Engineers |

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|---|---|---|---|---|---|---|---|
| Hazardous Waste Operations and Emergency Response | Course complies with 29 CFR 1910.120 training requirements for on-site emergency response. | General Physics Corporation. | -0- | Registrar, (301)290-2300 | General Physics Corporation, Attn: Course Registrar, 6700 Alexander Bell Drive, Columbia, MD 21046 | 14.0 | Emergency Responders |
| Hazardous Waste Operations and Emergency Response | Course satisfies the 40 hour federal requirement (29 CFR 1910.120) for general site workers with hazardous waste operations. | Tufts University, Center for Environmental Management | -0- | Registrar, (617)381-3531 | The Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 40.0 | Emergency Responders |
| Hazardous Waste Regulation Course | Covers disposal topics including land ban implementation, waste minimization, recycling, UST's and RCRA | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 16.0 | Compliance Personnel |
| Hazardous Waste Research | Provides information on new developments and on-going research in hazardous waste related areas. | Kansas State University, Engineering Extension | -0- | (913)532-5566 | Conference on Hazardous Waste Research, Division of Continuing Education, Kansas State University, College Court Bldg., Manhattan, KS 66506 | 14.0 | Process/Environ. Engineers |
| Hazardous Waste Seminar for Small to Medium Sized Generators | A program designed for small generators that presents an explianation of the law, the generator's responsibilities, and how to prepare waste for disposal. | Metropolitan Center for High Technology, | -0- | | Chamber of Commerce, 30500 Van Dyke, Suite 118, Warren, MI 48093 | 3.50 | Small Quantity Generators |

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|---|---|---|---|---|---|---|---|
| Hazardous Waste Site Operations | A 40 hour training course designed to meet the requirements outlined in OSHA 29 CFR 1910 Hazardous Waste Operations and Emergency Response. | DeLisle Associates LTD, | On-Site Instruments | , | DeLisle Associates LTD, 6946 East N Avenue, Kalamazoo, MI 49001 | 40.0 | Workers Under OSHA |
| Hazardous Waste Site Safety | Not Documented | University of Florida, | -0- | Registrar, (904)392-9570 | University of Florida, Treebo Center, 3900 SW 63rd Blvd, Gainsville, FL 32608 | 28.0 | Safety Personnel, HW Workers |
| Hazardous Waste Site Supervision | Not Documented | University of Florida, | -0- | Registrar, (904)392-9570 | University of Florida, Treebo Center, 3900 SW 63rd Blvd, Gainsville, FL 32608 | 7.00 | HW Site Managers |
| Hazardous Waste Tank Inspector Training | Date to be announced | U.S. EPA, OSWER | -0- | A. Whitfield, (202)475-9320 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Inspectors |
| Hazardous Waste Tank Systems Training | Date to be announced | U.S. EPA, OSWER | -0- | T. Kasten, (202)475-9320 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Inspectors, UST Managers |
| Hazardous Waste Treatment: Biosystems for Pollution Control | Use of Biosystems for the cleanup of contaminated soils, sludges, groundwaters, and leachates at remedial action sites. Environmental factors that influence microbe use are discussed. | U.S. EPA Risk Reduction Engineering Laboratory, | The Air and Waste Management Association | Sharon DeAndrea, (412)232-3444 | Air and Waste Management Association, P.O. Box 2861, Pittsburgh, PA 15230 | 8.00 | Process/Environ. Engineers |
| Hazardous Waste Worker Training | Training for managers and supervisors of hazardous materials operations | South Michigan Coalition on Occupational Safety and Health, | -0- | Amy Mock, (313)961-3345 | Director, Hazardous Waste Worker Training Program, 1550 Howard St., Detroit, MI 48216 U.S.A. | 8.00 | HW Site Supervisors |

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|---|---|---|---|---|---|---|---|
| Hazardous Waste Worker Training | Several courses at different universities are offered at varying times. Course fees are to be announced. | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Midwest Center for Occupational Health and Safety & U.S. Department of Health and Human Services | Jeanne Ayers, | Director, Continuing Education, Midwest Center for Occupational Health and Safety, 640 Jackson Street, St. Paul, MN 55101 | -0- | General HW Personnel |
| Hazardous Waste, Minimizing Your Liability | Provides information on the legal and technical concerns when evaluating contractors and disposal alturnatives to assist in minimizing disposal costs and liabilities. | Randolph, Breyer, & Associates, Inc., | Cross/Tessitore & Associates | Susan Orio, (314)576-0220 | Susan Orio, Randolf, Breyer, & Associates, 512 S. Hanley, Suite 79, St. Louis, MO 63105 | 10.0 | HW Managers, Consultants |
| Hazardous Waste: Site Safety | Provides specific guidance for compliance with RCRA, CERCLA, and OSHA regulations that impact design and implementation of site operating, safety, and contingency plans and training. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 40.0 | Safety Personnel |
| Hazardous Waste: Site Supervision | Eight hours of specialized training in the management of hazardous waste operations and long term spill cleanups. Meets OSHA requirements for (29 CFR 1910.120). | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Workers Under OSHA |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Hazardous Waste: The Consumer Connection | A household hazardous waste program to educate the Michigan public about the need for special, environmentally sound management of these wastes. | Michigan State University, Cooperative Extension Service | Eastern Michigan University, & Home Chemical Awareness Coalition | , (517)355-9578 | Michigan State University, 404 Agricultural Hall, East Lansing, MI 48824 | 10.0 | General Public |
| Hazardous Wastes, Superfund, and Toxic Substances | Up-to-date information on legal and scientific issues involving toxic chemicals and hazardous wastes | American Law Institute - American Bar Association, Committee on Continuing Professional Education | -0- | M. Maclay, (800)CLE-NEWS | Courses of Study, ALI-ABA, 4025 Chestnut St., Philadilphia, PA 19104 U.S.A. | 16.5 | Compliance Officers |
| Hazardous/Toxic Waste Management | Laws, Compliance Procedures and New Technologies | Illinois Institute of Technology, Stuart School of Business Administration | -0- | K. Bright, (312)567-5217 | Illinois Institute of Technology, Office of Continuing Education, 226 SB, ten West 31st St., Chicago, IL 60616 U.S.A. | 19.5 | Compliance Personnel |
| Hazardous/Toxic Waste Management :Laws, Compliance Procedures and New Technology | Defining hazardous wastes. Treatment, storage and disposal technology. Rules for generators. Compliance procedures. Rules for transporters. | Michigan State University, Gradute School of Business Adminstration, Lifelong Education Programs | -0- | Clark E. DeHaven, (517)353-8711 | Michigan State University, 7 Olds Hall, East Lansing, MI 48824 U.S.A. | 13.0 | Compliance Personnel |
| Hazardous/Toxic Waste Management: Laws, Compliance Procedures and New Technologies | Instructs on every critical area of hazardous waste management. Provides a tested approach to economical and efficient hazardous waste handling and disposal. | Baldwin-Wallace College, Department of Seminars and Training | Syska and Hennessy | Registrar, (216)826-2253 | Department of Seminars and Training, Baldwin-Wallace College, Continuing Education Center, Berea, Ohio 44017 | 16.0 | General HW Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Hazardous/Toxic Waste Management: Mandates, Strategies, and Options | Waste minimization, land disposal restrictions, the new TCLP (Toxicity Characteristic Leaching Procedure), release prevention and reporting, and medical waste tracking and monitoring. | LION Technology Inc., | -0- | Registrar, (201)383-0800 | Lion Technology, Inc., P.O. Drawer 700, Lafayette, NJ 07848-9990 | 16.0 | General HW Personnel |
| Hazardous/Toxic Waste Management: Annual National Registry Certification Workshop | Provides nationally recognized annual training. Discusses waste reduction, minimization, and management; land disposal restrictions and recycling rules. | Lion Technology, Inc., | -0- | Course registration, (201)383-0800 | Lion Technology Inc., P.O. Drawer 700, Lafayette, NJ 07848 | 14.0 | General HW Personnel |
| HAZCAT Chemical Identification | Provides pratical, hands-on experience identifying commonly encountered materials. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 15.0 | Other, Firefighters |
| HazMat Central, Hazardous Materials Management Conference | 11 seperate workshops on range of topics including emergency response, infectious materials handeling, in-plant industrial spill response, soil remediation, risk assessment, and environmental law. | HazMat World, | -0- | Tower Confer. Manag., (312)469-7477 | Tower Conference Management Company, 800 Roosevelt Road, Bldg. E-Suite 408, Glen Ellyn, IL 60137-5835 | -0- | General HW Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| HAZMAT Program | Training to handle, store, recycle, transport, collect, test, and dispose of hazardous materials in the most efficient, cost-effective manner. | Front Range Community College, | -0- | Treva Edwards,, (303)466-8811 | FRCC, 3645 W. 112th Ave., Westminster, CO 80030 U.S.A. | -0- | General HW Personnel |
| HAZOP- Hazard and Operability Analysis | Prepares operators, engineers, and managers to use the HAZOP technique-a systematic, imaginative search for operational difficulties and process hazards-and to lead effective HAZOP analysis. | JBF Associates, Inc., | -0- | Course Administrator, (615)966-5232 | JBF Associates, Inc., Technology Drive, 1000 Technology Park Center, Knoxville, TN 37932-3341 | -0- | Risk Assessors |
| HAZTECH International | Hazardous material management | Colorado Ground Water Association, | American Institute of Professional Geologists - Colorado Section, Hazardous Waste Management Society, American Socity of Civil Engineers - Colorado Section and Colorado Training Institute. | HAZTECH International, (303)850-9119 | c/o Chuck Bierley, 6143 S. Willow Dr., Ste. 100, Englewood, CO 80111 U.S.A. | 12.0 | General HW Personnel |
| Hazwoper and RCRA Workshops: Responding To Chemical Spills | Proper response techniques, use of spill control equipment, and selection and use of protective equipment. | Pathfinder Associates Inc., | -0- | Registrar, (616)774-8462 | Pathfinder Associates Inc., P.O. Box 5240, 1906 Mills Avenue, N. Muskegon, MI 49445 | 6.00 | Emergency Responders |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Health and Safety Considerations at Leaking Underground Storage Tanks | Provides information on health and safety procedures, worker and community risk, regulation, and safety equipment. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 8.00 | UST Owner/Operators |
| Health and Safety for Hazardous Waste Site Investigation Personnel | OSHA required 40 hour off site training for employees involved in hazardous waste operations under CERCLA or RCRA | New Jersey/New York Hazardous Materials Worker Training Center, | University of Medicine and Dentistry of New Jersey - Robert Wood Johnson Medical School | Registrar, (201)463-5062 | EOSHETC/DCHE, UMDNJ-Robert Wood Johnson Medical School, 45 Knightsbridge Rd., Piscataway, NJ 08854 | 40.0 | Workers Under OSHA |
| Health and Safety for Hazardous Waste Site Investigation Personnel | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | Mitchel Rosen, (201)463-5062 | Program Coordinator, EOSHETC, Dept. of Envir. & Community Med., UMDNJ Robert W. Johnson Med. School, 45 Knightsbridge Dr., Piscataway, NJ 08854 | -0- | Workers Under OSHA |
| Health and Safety in EPA Field Activities | Available upon request | U.S. EPA, OSWER | -0- | C. Zieschang, (202)382-3650 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Safety Personnel |
| Health and Safety Refresher Course for Hazardous Waste Workers | Designed to update knowledge on health and safety issues for persnnel who have taken the 40 hour health and safety program. The program meets the OSHA requirement for refresher training. | University of California, University Extension | -0- | , (916)752-0880 | University Extension, University of California, Davis, CA 95616 | 8.00 | Workers Under OSHA |
| Health and Safety Training for Hazardous Waste Activities | Provides the required 40 hour OSHA 29 CFR1910.120(e) training. | Geraghty & Miller, Inc., | -0- | Dick Miller, (212)371-1620 | American Ecoloogy Services, Inc., 127 East 59th Street, New York, NY 10022 | 40.0 | Workers Under OSHA |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Health and Safety Training for Hazardous Waste Operations - 24 Hour Workshop for Emergency Response Teams and TSD Workers | Provides the knowledge and skills needed to perform HW related jobs with minimal health risk. Also provides workshops on drum handling and spill response. | University of Wisconsin - Madison, Department of Engineering Professional Development | -0- | Dr. Mike Waxman, (608)262-2101 | The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 | 24.0 | HW Workers, Emergency Respon. |
| Health and Safety Training for Hazardous Waste Operations - 40 Hour Workshop for Superfund and RCRA Site Remediation Personnel | Offers a comprehensive approach to safety and risk management. Addresses issues like hazard recognition, personal protective equipment, monitoring equipment, and contingency planning. | University of Wisconsin - Madison, Department of Engineering Professional Development | -0- | Dr. Mike Waxman, (608)262-2101 | The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 | 40.0 | Remediation Workers |
| Health and Safety Training for Hazardous Waste Operations - 8 Hour Workshop for Managers | Addresses the requirements for training, medical surveillance and industrial hygiene monitoring programs associated with HW clean-up. | University of Wisconsin - Madison, Department of Engineering Professional Development | -0- | Dr. Mike Waxman, (608)262-2101 | The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 | 8.00 | Safety Personnel |
| Health and Safety Training for Hazardous Waste Workers | Designed to satisfy the OSHA regulations covering personnel involved in investigation and remediation of HW sites. | University of California, University Extension | -0- | (916)752-0880 | University Extension, University of California, Davis, CA 95616 | 40.0 | Workers Under OSHA |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Health and Safety Training for Supervisors of Hazardous Waste Workers | Designed for individuals who have supervisory responsibilities at HW sites. | University of California, University Extension | -0- | , (916)752-0880 | University Extension, University of California, Davis, CA 95616 | 8.00 | HW Site Supervisors |
| How to Comply with Employee Right-To-Know , Safety and Health, and SARA Title III Regulatory Requitements | A one day course presenting regulatory requirements and procedures for compliance. | South Carolina Environmental Training Center, | Environmental Resourse Center | , (803)778-1961 | Right-To-Know Compliance Course, South Carolina Environmental Training Center, 506 North Guignard Drive, Sumter, NC 29150 | 7.00 | Compliance Officers |
| How to Comply with Florida's Hazardous Waste Regulations for Generators | Identification of wastes and guidelines on how to meet government regulations for hazardous waste. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Small Quantity Generators |
| How to Comply with State & Federal Environmental Regulations | Provides state-by-state environmental regulatory compliance information. | Business and Legal Reports, Inc., | -0- | , (800)553-4569 | Business & Legal Reports, Inc., 64 Wall Street, Madison, CT 06443-1513 | 10.0 | Compliance Officers |
| How to Handle Environmental Compliance | Information to write an effective environmental management plan, including details about environmental regulations, their purpose and affects. | University of Kansas, Continuing Education | -0- | Registrar, (913)491-0221 | The University of Kansas, 6600 College Blvd., Suite 315, Overland Park, KS 66211-1522 | 20.0 | Compliance Personnel |
| How to Manage an Environmental Project | Outlines the steps involved in managing HW projects for companies with HW problems. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 6.00 | Environmental Auditors |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| How to Manage Medical and Infectious Waste - Practical Considerations | Provides information on state, regional, and federal requirements relative to the management of medical and infectious waste | HMCRI, | -0- | Registrar, (301)587-9390 | HMCRI-IW Regionals, 9300 Columbia Blvd., Silver Spring, MD 20910-1702 | 14.0 | Hospital Personnel |
| How to Prepare and Implement a Risk Management and Prevention Plan | Provides information on how to develop and implement a RMPP. A generic RMPP is developed in the class as an example. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 6.00 | Risk Assessors |
| Human Reliability Analysis | Qualitative and quantitative methods for assessing the effects of human performance on the reliability of complex systems. | JBF Associates, Inc., | -0- | Course Administrator, (615)966-5232 | JBF Associates, Inc., Technology Drive, 1000 Technology Park Center, Knoxville, TN 37932-3341 | -0- | Risk Assessors |
| Implementing a Quality Hazard Communication Program: A Step-By-Step Approach | ? | University of Utah, Rocky Mountian Center for Occupational & Environmental Health | -0- | , (801)581-5710 | Rocky Mountian Center for Occupational and Environmental Health, Continuing Education, University of Utah, Bldg. 512, Salt Lake City, UT 84112 | 7.00 | Safety Personnel |
| In-Plant Chemical Spill Response | Covers the fundamentals of in-plant industrial spill response, including forklift operations, recieving docks, storage, transfer and process operations, and laboratories. | University of Toledo, Continuing Education | -0- | , (419)537-2033 | University of Toledo, Driscoll Center for Continuing Education, Toledo, OH 43606 | 6.00 | Emergency Responders |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Incident Analysis of Hazardous Materials: The Systematic Analysis of a Hazardous Material Site Emergency | Hazardous materials incident analysis introduces a systematic method of analyzing and assessing the potential effect of hazardous materials involvement in fires and other emergencies. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU, Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | Emergency Responders |
| Incineration of Hazardous and Non-Hazardous Waste | Persents incineration theories and techniques, as well as permitting and equipment requirements, energy recovery, and pollution abatement. | Center for Professional Advancement, | -0- | , (201)613-4500 | The Center for Professional Advancement, P.O. Box 964, East Brunswick, NJ 08816 | 28.0 | Incinerator Operators |
| Incineration of Industrial Waste | Provides an annual forum for experts from the field to present information about the latest technical delevoments related to the incineration of industrial waste. | Toxcon Engineering Company, Inc., | | Carla Reid, (713)520-7667 | Carla Reid, Program Director, Toxcon Engineering Company, Inc., 3334 Richmond Ave., #200, Houston, TX 77098 | 18.0 | Incinerator Operators |
| Incineration of Medical Wastes | Examines regulatory, technical, economical, and environmenta; considerations of on-site incineration. | Randolph, Breyer and Associates, | Association for the Safe Handling of Biomedical Wastes | Susan Orio, (314)576-0220 | Randolph, Breyer and Associates, Inc., 512 S. Hanley, Suite 79, St. Louis, MO 63105 | 14.0 | Hospital Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Incinerator Retrofit for Hospitals and Industry | Focuses on retrofitting incinerators but will also help with the decision of whether to retrofit, buy a new unit or send wastes off site for disposal. | Randolph, Breyer & Associates, Inc., | Cross / Tessitore & Associates | Susan Orio, (314)576-0220 | Randolph, Breyer & Associates, Inc., 512 S. Hanley, Suite 79, St. Louis, MO 63105 | 20.0 | Hospital Personnel |
| Industrial Emission and Air Quality Monitoring | Course, with workshops and field trips, in pollution control and abatement of gaseous and particulate emmissions. | Center for Professional Advancement, | -0- | , (201)613-4500 | The Center for Professional Advancement, P.O. Box 964, East Brunswick, NJ 08816 | 21.0 | Process/Environ. Engineers |
| Industrial Hazardous Waste Incineration | Review of factors effecting the design of hazardous liquid, solid, and sludge incinerators to meet current environmental standards. | AIChE, Continuing Education | -0- | AIChE Registrar, (212)705-7526 | Continuing Education Department, AIChE, 345 E. 47th Street, New York, NY 10017 | 14.0 | Process/Environ. Engineers |
| Industrial Hygiene | Principles of industrial hygiene that will enable the engineer to develop an understnading of exposure control design and operation required for the protection of workers. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | Safety Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Industrial Hygiene Practice | Will emphasize practical skills and methods needed for recognition, evaluation, and control of occupational health hazards. | Center for Professional Advancement, | -0- | Registrar, (201)613-4500 | The Center for Professional Advancement, P.O. Box 964, East Brunswick, NJ 08816-0964 | 32.0 | Safety Personnel |
| Industrial Toxicology | Significant concepts relating to industrial toxicology are presented to provide an understanding of the biological interactions and chemical toxicants. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | Safety Personnel |
| Industrial Ventilation: Design for Contaminant Control | Ventilation system design and testing, supplemented with an introduction to a computer routine for rapidly completing design calculations. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | Process/Environ. Personnel |
| Industrial Waste Disposal: 1989 Concerns and Remedies | Discusses on-site waste handling, recycling, and waste facility siting | Federation of Environmental Technologists, | Illinoise Land of Lincoln Governmental Refuse Collection & Disposal Association | Registrar, (414)251-8163 | FET, P.O. Box 185, Milwaukee, WI 53201 | 5.00 | General HW Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Industrial Waste Generators' Seminar, Gen Sem '89, Seventh Annual | The seminar includes a number of notable speakers discussing a wide range of hazardous waste topics directed towards industrial waste generators.Also exhibits displaying all kinds of equipment. | LICA (Liquid and Solid Industrial Control Association), | -0- | Registrar, (313)642-9797 | LICA, 199 Pierce St., Suite 204, Birmingham, MI 48009 | 16.0 | General HW Personnel |
| Industrial Waste Reduction and Resourse Conservation | Course helps to prepare plans for waste and toxicity reduction in compliance with RCRA, perform environmental audits, and minimize liabilities. | George Washington University, Continuing Engineering Education Program | -0- | Chip Blouin, 1800-424-9773 | Continuing Engineering Education Program, The George Washington University, Washington, D.C. 20052 | 21.0 | Process/Envi ron. Engineers |
| Industrial Waste Treatment Plant Operators Training Course: Preparation for Licensing | Legal aspects of pollution control, basic wastewater treatment mathematics and calculations, clarification-so lids and oil removal, heavy metals/oil removal, and review for state licensing exam. | Engineering Society of Detroit, Society for Environmental Science | -0- | Registrar, (313)832-5400 | SES/IWTP Class, 100 Farnsworth Ave, Detroit, MI 48202 | 24.0 | General HW Personnel |
| Industrial Wastewater Pretreatment | Provides pratical information about the U.S. EPA Industrial Wastewater Pretreatment Program and how to meet compliance. | University of Toledo, Division of Continuing Education | -0- | Seminar Registrar, (419)537-2033 | University of Toledo, Division of Continuing Education, Seminars, Toledo, OH 43606 | 7.00 | Wastewater Treaters |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Inland Oil Spill Control | Provides information on how to handle a spill within the capabilities of availble equipment and manpower. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)740-4490 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 40.0 | Emergency Responders |
| Inland Oil Spills | Not Documented | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 24.0 | Emergency Responders |
| Inside *Superfund*: Enforcement, Settlement, Claims Management | An extensive look at enforcement, settlement, and claims management for superfund. | Inside EPA Weekly Report, | Risk Management Technologies, Inc. | Registrar, (800)424-9068 | Inside EPA, PO Box 7167, Ben Franklin Station, Washington D.C., MD 20044 | 16.0 | Remediation Workers |
| Inspecting Buildings for Asbestos Containing Materials | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 24.0 | Asbestos Handlers |
| Inspectors Annual Review | A half-day course required to maintain certification as asbestos inspectors. | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 4.00 | Asbestos Handlers |
| Institute in Risk Management in Environmental Health and Protection | -0- | New York University, Graduate School of Public Administration | -0- | Dr. Rae Zimmerman, (212)998-7430 | Graduate School of Public Administration, New York University, 4 Washington Square North, New York, NY 10003 | 21.0 | Risk Assessors |
| Insurance Claims for Environmental Damages: Legal and Technical Considerations | Covers environmental claims from the legal, technical and insurance perspectives. | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 16.0 | Risk Assessors |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Introduction to Environmental Engineering | Current and pending regulations that affect the design of disposal systems for liquid and solid wastes. Also current treatment systems, and air, water, and land quality management. | George Washington University, Continuing Engineering Education Program | -0- | Cliff Hopkins, (202)994-8521 | Continuing Engineering Education Program, The George Washington University, Washington D.C., 20052 | 16.0 | General Public |
| Introduction to Environmental Engineering | To provide an overview of environmental engineering, including air pollution, wastewater and hazardous waste. | George Washington University, Continuing Education Program, School of Engineering and Applied Science | -0- | Cliff Hopkins, (202)994-8521 | Continuing Engineering Education Program, The George Washington University, Washington, DC 20052 | 16.0 | General HW Personnel |
| Introduction to General Chemistry for Hazardous Materials Management | Designed for people with no prior exposure to chemistry. A basic introduction to the subject. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 7.50 | General HW Personnel |
| Introduction to Ground Water Investigation | -0- | U.S. EPA, OSWER | -0- | Registrar, (513)569-7537 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Water Resource Engineer |
| Introduction to Groundwater Modeling: Using Microcomputers to Solve Groundwater Problems | Introduces the use of computer models to solve groundwater problems. | University of Florida, Continuing Education Center, TREEO Center | Departments of Environmental Engineering Services, Geology, and Civil Engineering | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 16.0 | Water Resource Engineer |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Introduction to Groundwater: Contamination, Investigation, and Remediation Assessment | Introductory training in the movement of contaminants throughout groundwater systems. Basic concepts in hydrogeology, aquifer behavior, principles of chemical contaminant transport, and more. | University of Florida, Continuing Education Center, TREEO Center | Departments of Environmental Engineering Sciences, Geology, and Civil Engineering, University of Florida | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 16.0 | Water Resource Engineer |
| Introduction to Hazardous Waste Management: OSHA and RCRA Requirements | Introductory course presenting the reasons for hazardous waste regulations, content of current regulations, responsibilities of organizations that generate or handle such wastes, and more. | University of Missouri-Columbia, Departments of Civil and Chemical Engineering | College of Engineering, Engineering Extension, and Department of Environmental Health and Safety | Virginia Nettleton, (314)882-2087 | Introduction to Hazardous Waste Management, 1020 Engineering Complex, University of Missouri-Columbia, Columbia, MO 65211 | 24.0 | General HW Personnel |
| Introduction to Organic Chemistry for Hazardous Materials Management | Bacis introduction to organic chemistry. Examples from the HW field will be included. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 7.50 | General HW Personnel |
| Introduction to Risk Assessment and Risk Management | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | John Hopkins Educational Resource Center & U.S. Department of Health and Human Services | Dr. Jacqueline Corn, (301)955-2609 | Continuing Education Director, Dept. of Envir. Health, John Hopkins School of Public Health, 615 N Wolfe Str., Room 1003, Baltimore, MD 21205 | -0- | Risk Assessors |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Laboratory Quality Assurance and Assessment for Environmental Testing | Explains how to identify shortcommings in an existing testing program and upgrade or build a program using state-of-the-art quality control techniques | American Association for Laboratory Accreditation, | Center for Energy and Environmental Management | , (703)250-5900 | CEEM, Box 200, Fairfax Station, VA 22039 | 14.0 | Lab Technicians |
| Land Ban Update | The focus will be on the tightened federal restrictions on the disposal of hazardous waste in land fills. | Engineering Society of Detroit, The Society for Environmental Science | -0- | Registrar, (313)832-5400 | ESD, 100 Farnsworth, Detroit, MI 48202 | 1.00 | Landfill Operators |
| Land Disposal Restrictions Enforcement Training | -0- | U.S. EPA, OSWER | -0- | J. Thompson, (202)382-2265 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Inspectors and Regulators |
| Land Treatment Technology for Indistrial Wastes, Wastewaters, and sludges | Presents the latest information, techniques, and regulatory constrants regarding this approach to managing industrial wastewater and sludges. | AIChE, Continuing Education | -0- | AIChE Registrar, (212)705-7526 | Continuing Education Department, AIChE, 345 E. 47th Street, New York, NY 10017 | 14.0 | Landfill Operators/Owners |
| Lead Based Paint Abatement for Workers, Supervisors and Contractors | A Massachusetts state accredited lead-based paint abatement course. Topics include medical serveillance, protective equipment and regulations. | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 24.0 | Safety Personnel, Risk Assess. |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Leaking Underground Storage Tank Corrective Action Alternatives | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 16 0 | UST Owner/Operators |
| Leaking Underground Storage Tank Workshop | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 32.0 | UST Owner/Operators |
| Legal Perils of Hazardous Waste and Environmental Management | Presents methods to ensure compliance with federal regulation and minimize the cost of complying with the law. | University Seminar Center, | -0- | Ruth Wecker, 1800-255-1080 | Seminar Coordinator, 44 Commercial Warf, Boston, MA 02110 | 7.00 | Compliance Officers |
| Liability, Hazardous Waste and Real Estate | Provides a review of legislation on the liabilities associated with the sale and ownership of contaminated real estate, and outline the responsibilities of past and present owners. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 6.50 | Environmental Auditors |
| Living With Chemicals in the Workplace | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Harvard Educational Resource Center & U.S. Department of Health and Human Services | Daryl Bichel, (617)732-1260 | Harvard Educational Resource Center, 665 Huntington Ave., Boston, MA 02115-9957 | -0- | General HW Personnel |
| Living With TSCA | Offers a comprehensive overview of the many facets of TSCA. | Chemical Manufacturers Association, | -0- | Ms. Jeanmarie Morgan, (202)659-0060 | SOCMA, 1330 Connecticut Ave.,NW, #300, Washington, DC 20036 | 13.0 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Making Sense of Environmental Regulations | Contains an overview of all the major environmental laws | University of Kansas, Division of Continuing Education | -0- | Registrar, (913)491-0221 | The University of Kansas,6600 College Blvd., Suite 315, Overland Park, KS 66211-1522 | 21.0 | Compliance Officers |
| Management of Hazardous Chemical Wastes | Understanding the complex regulations that are in force today, as well as those coming into effect. | J.T. Baker Chemical Company., Office of Training Services | -0- | , (201)454-2500 | Office of Training Services, J.T. Baker Chemical Co., 222 Red School lane, Phillipsburg, NJ 08865 U.S.A. | 14.0 | Compliance Officers |
| Management Briefing on Asbestos in Buildings | Designed to provide building owners with the basic information necessary to understand the asbestos crisis and begin making decisions about the management of asbestos in their buildings. | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 8.00 | Asbestos Handlers |
| Management of Hazardous Waste | Comprehensive review of techniques and technologies for managing hazardous wastes | University of Texas at Austin, Department of Civil Engineering | -0- | David Daniel, (512)471-4730 | Continuing Engineering Studies, College of Engineering, Ernest Cockrell Hall 10.324, The University of texas at Austin, Austin,, TX 78712 U.S.A. | 33.0 | Other |
| Management of Hazardous Wastes | Management of Hazardous Wastes, Up to date changes and Regulations. | Colorado State University, Colorado Depatment of Health | The Department of Transportation, The Environmental Protection Agency | , (303)492-6025 | Environmental Health & Safety, Campus Box 375, University of Colorado, Boulder,, CO 80309 U.S.A. | 7.50 | Compliance Officers |
| Management Planners Annual Review | A one day course required to maintain certification as asbestos management planners. | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 8.00 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Management Seminar for Water and Wastewater Operators | Emphasizes management education and skill development and is designes for the 'B' operator or 'A' certified operator interested in becoming a manager, supervisor, or leader. | University of Florida, Continuing Education Center, TREEO Center | FW & PCOA | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3846 | 40.0 | Water Resource Engineer |
| Managing Asbestos in Buildings | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 16.0 | Asbestos Handlers |
| Managing Environmental Compliance at Federal Facilities | Topics include: responding to spills, product storage and transportation, land use regulation, management strategies and funding issues. | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 15.0 | General HW Personnel |
| Managing EPA/ OSHA Issues | Designed to provide a working knowledge of regulations and to provide a framwork for implementing an effective program to manage key issues | American Trucking Associations, | -0- | Registrar, (703)838-1755 | American Trucking Associations, 2200 Mill Road, Alexandria, VA 22314-4677 | 12.0 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Managing Hazardous Chemicals: Intergrating Hazard Communication, Chemical Safety, Hazardous Waste Management, and Emergengy Response | Provides information on the development of management strategies related to the implication of an efficient, comprehensive chemical safety program. | University of North Carolina, Occupational Safety and Health Summer Institute | -0- | , (919)962-2101 | Dept. of Envir. Sci. and Engineering, School of Public Health, Univ. of North Carolina, 109 Conner Dr., Suite 1101, CB# 8150, Chapel Hill, NC 27514 | 18.0 | Safety Personnel |
| Managing Risk Communications | Designed to help site managers design, plan and implement communications with the many community segments. | DuPont Company, | -0- | Registrar, (800)248-7020 | DuPont Company, Suite A, Attn. CAK, 1300 1st State Blvd., Wilmington, DE 19804 | 14.0 | General HW Personnel |
| Managing the Impact of Environmental Laws on Real Estate Transactions | Information on protecting yourself from the major liabilities affecting coporate real estate purchases, sales, mergers, and aquisitions. | Government Institutes, Inc., | -0- | Registrar, (301)251-9250 | Government Institutes, Inc., 966 Hungerford Drive #24, Rockville, MD 20850 | 12.0 | Environmental Auditors |
| Managing the Superfund Process, from Notice through Settlement | Strategies, tactics and techniques for handling a Superfund case, from its inception to its resolution. | Executive Enterprises, Inc., | -0- | Registrar, (800)831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, New York 10010-6904 | 8.00 | Remediation Workers |
| Managing Underground Storage Tanks | Slide presentation on the facts and the visuals you need to make meaningful UST presentation | U.S. Environmental Protection Agency, National AudioVisual Center | -0- | , (800)638-1300 | National AudioVisual Center, Customer Services Section/WD, 8700 Edgeworth Dr., Capitol Hieghts, MD 20743 | -0- | UST Owner/Operators |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Managing Your Infectious & Hazardous Wastes | Not Documented | University of Wisconsin, Engineering Professoinal Development | -0- | Philip O'Leary, (800)262-6243 | University of Wisconsin, Engineering Professional Development, 432 N. Lake Street, Madison, WI 53706 | 0.00 | Hospital Personnel |
| Medical Waste Management for Physicians | Occupational safety and infectious waste handling for small quantity generators and institutions. | Randolph, Breyer and Associates. | Association for the Safe Handling of Biomedical Wastes | Susan Orio, (314)576-0220 | Randolph, Breyer and Associates, Inc., 512 S. Hanley, Suite 79, St. Louis, MO 63105 | 14.0 | Hospital Personnel |
| Methods for the Calculation of Fire and Explosion Hazards | A problem solving suplement to the AIChE course "Fundementals of Fire and Explosion Hazard Evaluation". | AIChE, Continuing Education | -0- | AIChE Registrar, (212)705-7526 | Continuing Education Department, AIChE, 345 E. 47th Street, New York, NY 10017 | 14.0 | Risk Assessors |
| Michigan Hazardous Waste Industry Occupational Safety and Health Training Program | Managers Workshop (Hazard communication "Right-to-Know", Hazardous waste management for small quantity generators) | Michigan State University, Community Development Programs | Michigan Dept. of Labor, Safety and Education and Traininig Program | (517)355-0100 | Michigan State University, 43 Kellogg Center, East Lansing, MI 48824 U.S.A. | -0- | Safety Personnel |
| Michigan Occupation Safety and Health Act | Superfund Amendments and Reauthorization Act (SARA) | Michigan State University, School of Labor and Industrial Relations | -0- | Edward E. Anderson, (517)355-9591 | Personnel Management Program Service, School of Labor and Industrial Relations, 409 South Kedzie Hall, Michigan State UNIV., East Lansing., MI 48824 U.S.A. | 4.00 | Compliance Officers |
| Minimizing Liability for Hazardous Waste Management | Minimizing liability and transaction costs in cleanup, Minimizing Treatment/disposal and cleanup costs | American Law Institute - American Bar Association, Committee on Continuing Professional Education | -0- | M. Maclay, (800)CLE-NEWS | Courses of Study, ALI-ABA, 4025 Chestnut St., Philadelphia, PA 19104 U.S.A. | 14.0 | General HW Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Monitoring and Control of Toxics and Criteria Pollutants | Hospital waste problems and control | UMDNJ-Robert Wood Johnson, Medical School | -0- | Lee Laustsen, (201)463-4500 | Program Manager, UMDNJ, Robert Wood Johnson Medical School, 675 Oses Lane, Piscataway, NJ 08854 U.S.A. | 7.50 | Hospital Personnel |
| Monitoring and Control of Toxics and Criteria Pollutants | Monitoring and control of asbestos | Asbestos Control Service, New Jersey Department of Health | -0- | Lee Laustsen, (201)463-4500 | Program Manager, UMDNJ, Robert Wood Johnson Medical School, 675 Oses Lane, Piscataway, NJ 08854 U.S.A. | 7.50 | Asbestos Handlers |
| Monitoring of Air Toxics | -0- | U.S. EPA, Atmospheric Research Exposure Assessment Laboratory | Air and Waste Management Association | Dan Denne, (412)232-3444 | Air & Waste Management Association, P.O. Box 2861, Pittsburgh, PA 15230 | 7.00 | Lab Technicians |
| New UST Requirements and How They May Effect You | Covers installing and abandoment/removal of UST's as well as remediation of leaking UST's. | Federation of Environmental Technologists, | -0- | Darlene Jackson, (414)259-5149 | FET, P.O. Box 185, Milwaukee, WI 53201 | 6.00 | UST Owner/Operators |
| Occupational Epidemiology | Provides an overview of the Epidemiological methods used in the study of occupation related diseases and injury | Southwest Center for Occupational Health and Safety, | | Patricia Buffer, | Southwest Center for Occupational Health and Safety, P.O. Box 20186, Houston, TX 77225 | 12.5 | Safety Personnel |
| Occupational Respiratory Protection | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | Ramona Cayuela, (213)743-6383 | Director, Continuing Education, Univ. of Southern California, Professional Programs, 3500 S. Figueroa Street, Suite 202, Los Angeles, CA 90007 | -0- | Safety Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Occupational Safety and Health Winter Institute - Managing Hazardous Chemicals | Provides understanding of Right-To-Know, OSHA's expanded hazard communication laws and proposed lab safety rules, and computer applications for hazardous chemical management | University of North Carolina, | -0- | Wayne Thomann, (919)962-2101 | OSHERC, University of North Carolina, 109 Conner Drive, Suiite 1101, CB# 8150, Chapel Hill, NC 27514 | 18.0 | Safety Personnel |
| Oil Spill Control | Provides information on how to handle a spill within the capabilities of availble equipment and manpower. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)740-4490 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 40.0 | Emergency Responders |
| Oil Spill Dispersant Application Management Training | Prepares participants to act in a leadership capacity during an oil spill. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)740-4490 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 20.0 | Emergency Responders |
| Oil, Hazardous Materials, Hazardous Wastes | RCRA safety training for hazardous waste handlers | Corpus Christi State University, National Spill Control School | -0- | , (512)991-8692 | Corpus Christi State University, 6300 Ocean Dr., Corpus Christi, TX 78412 U.S.A. | 40.0 | Safety Personnel |
| On-Site Groundwater and Soil Remediation | Short course focusing on regulations, management decision tools and remediation techniques for the chemical and manufacturing industries. | Groundwater Technology, Inc., | -0- | Jennifer Ryan, (800)635-0053 | Groundwater Technology, Inc., 220 Norwood Park South, Norwood, MA 02062 U.S.A. | 10.0 | Remediation Workers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| OSHA 40 Hour Emergency Response | Meets and exceeds OSHA 24-hour training for hazardous materials technicians. | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 40.0 | Workers Under OSHA |
| OSHA 40 Hour Safety Training | Meets the federal OSHA requirements for safety training. | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 40.0 | Workers Under OSHA |
| OSHA 8 Hour Refresher Training | Meets the federal OSHA requirements for an annual refresher training. | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 8.00 | Workers Under OSHA |
| OSHA Compliance Course | Not Documented | Government Institutes, Inc., | -0- | Sheila Coffman, (301)251-9250 | Government Institutes, Inc., 966 Hungerford Dr., Suite 24, Rockville, MD 20850-1714 | 14.0 | Compliance & Safety Personnel |
| OSHA Hazardous Materials for Hazardous Waste Site Workers | A basic , hands-on course for training OSHA site workers to perform appropriate hazard assessment, risk analysis, and scene management in the control of potentially hazardous materials. | HAZMAT Inc., | -0- | , (800)777-TISI | Columbia Business Center, 6480 Dobbin Road, Columbia, MD 21045 U.S.A. | 35.0 | Workers Under OSHA |
| OSHA Injury and Illness Recordkeeping | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 8.00 | Workers Under OSHA |
| OSHA Right-To-Know | OSHA Hazard communication standard: Employee Right-To-Know | Environmental Resource Center, | -0- | , (800)5ERC-ERC | Environmental Resource Center, 608 Southview Circle, Fayetteville, NC 28311 U.S.A. | 7.00 | Safety Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| OSHA Site Supervisor Training | Meets the federal OSHA requirements as they apply to safety training for site supervisors. | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 8.00 | Workers Under OSHA |
| Packaging and Transportation of Radioactive Materials - Regulatory Compliance | Invstigates the DOT/NRC/DOE requirements for shipping radoiactive materials | NEWC, | -0- | , (513)422-8495 | NEWC, PO Box 1193, Middletown, OH 45042 | 13.0 | Radioactive Material Managers |
| Performace and Costs of Alternatives to Land Disposal of Hazardous Waste | Hazardous Waste Incineration | APCA Hazardous Waste Treatment and Disposal Committee (TW-1), | -0- | Sharon DeAndrea, (412)232-3444 | Air pollution Control Association, P.O.Box 2861, Pittsburgh, PA 15230 U.S.A. | 11.0 | Landfill Operators/Owners |
| Personal Protection and Safety | -0- | U.S. EPA, OSWER | -0- | Registrar, (513)569-7537 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Safety Personnel |
| Personal Protection and Safety | Specialized training in personal protection and safety in responding to hazardous materials incidents and chemical spills. | University of Florida, Continuing Education Center, TREEO Center | Florida Department of Community Affairs | John Beaudry, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 7.00 | Emergency Responders |
| Personnel Protection and Safety for Hazardous Waste Workers | Course for Superfund site workers, meets OSHA requirements. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-3418 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 40.0 | Workers Under OSHA |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Personnel Protection and Safety for Supervisors | Course for Superfund site supervisors, meets OSHA requirements. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-3418 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 8.00 | Workers Under OSHA |
| Personnel Protection and Safety Refresher Course | Course for Superfund site workers, meets OSHA requirements for an annual refresher course. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-3418 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 8.00 | Workers Under OSHA |
| Physical Assessment Skills for Workplace Emergencies | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Harvard Educational Resource Center & U.S. Department of Health and Human Services | Daryl Bichel, (617)732-1260 | Harvard Educational Resource Center, 665 Huntington Ave., Boston, MA 02115-9957 | -0- | General HW Personnel |
| Pollution Insurance Coverage and Environmental Claims Management | The conference will explore critical developments in the pollution insurence marketplace. | Inside EPA Weekly Report. | Risk Management Technologies, Inc. | , (800)424-9068 | Inside EPA, P.O. Box 7167, Ben Franklin Station, Washington, D.C. 20044 | 14.0 | Risk Assessors |
| Pollution Liability Insurance and Idemnifica-ti on for Superfund Response Action Contracts | Available upon request | U.S. EPA, OSWER | -0- | T. Gillis, (202)382-4524 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Remediation Workers |
| Practical Implementatio n of a Respirator Program | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 24.0 | Safety Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Practice and Procedures in Asbestos Control | A comprehensive discussion of the practices and procedures used in asbestos abatement work. Three days of lecture and 1.5 days of hands-on workshops. | University of California - Berkeley, University Extension | -0- | Registrar, (415)642-4111 | Dept. B, UC Berkeley Extension, 2223 Fulton St., Berkeley, CA 94720 | 40.0 | Asbestos Handlers |
| Prevention and Mitigation Techniques for High Toxic Hazard Releases | "How to" information relating to safe design and operation of high toxic hazard material storage and handeling facilities. | AIChE, Continuing Education | -0- | AIChE Registrar, (212)705-7526 | Continuing Education Department, AIChE, 345 E. 47th Street, New York, NY 10017 | 21.0 | Risk Assessors |
| Prevention, Management, and Compliance for Hazardous Wastes | Detailed case studies are used to demonstrate pratical solutions with an emphasis on hazardous waste minimization techniques. | AIChE, Continuing Education | -0- | AIChE Registrar, (212)705-7526 | Continuing Education Department, AIChE, 345 E. 47th Street, New York, NY 10017 | 14.0 | Process/Environ. Engineers |
| Principles of Applied Toxicology | An overview of applied toxicology including regulatory requirements for toxicity testing methods, risk assessment, and the submission of data. | International Center for Health and Environmental Education, | -0- | Registrar, (703)658-8888 | International Center for Health and Environmental Education, 4600 Pinecrest Office Park Drive, Alexandria, Virginia 22312 | 32.0 | Other |
| Principles of Toxicology | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | John Hopkins Educational Resource Center & U.S. Department of Health and Human Services | Dr. Jacqueline Corn, (301)955-2609 | Continuing Education Director, Dept. of Envir. Health, John Hopkins School of Public Health, 615 N Wolfe Str., Room 1003, Baltimore, MD 21205 | -0- | Other |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Procedures and Practices for Asbestos Abatement | An EPA approved course covering the basic steps of an abatement project. | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 40.0 | Asbestos Handlers |
| Procedures and Practices for Asbestos Abatement - Annual Review | A one day course required for asbestos handlers to maintain state certification | Tufts University, The Center for Environmental Management | -0- | Registrar, (617)381-3531 | Center for Environmental Management, Tufts University, Curtis Hall, 474 Boston Ave., Medford, MA 02155 | 8.00 | Asbestos Handlers |
| Process Reliability and Risk Analysis | Provides an introduction to reliability and risk analysis. It shows how they can be used to plant on-stream time and to make better predictions on environmental hazards. | Center for Professional Advancement, | -0- | , (201)613-4500 | The Center for Professional Advancement, PO Box 964, East Brunswick, NJ 08816 | 21.0 | Risk Assessors |
| Quality Assurance for RAM Packages | Presents techniques for auditing and training to provide quality assurance for radioactive materials packaging | NEWC, | -0- | , (513)422-8495 | NEWC, PO Box 1193, Middletown, OH 45042 | 13.0 | Radioactive Material Managers |
| Quality Management In the Testing Laboratory | Provides hands-on training in managing quality control in the laboratory. | American Association for Laboratory Accreditation, | Center for Energy and Environmental Management | , (703)250-5900 | CEEM, P.O. Box 200, Fairfax Station, VA 22039 | 18.0 | Lab Technicians |
| Quantitative Risk Assessment in the Chemical Process and Related Industries | Not Documented | The Center for Professional Advancement, | -0- | Registrar, (201)613-4535 | The Center for Professional Advancement, P.O. Box H, East Brunswick, NJ 08816-0257 | 28.0 | Risk Assessors |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Radiation Safety Specialist Training Program | Provides understanding of the basic properties of radiation and its interactions, as well as biological effects and protection methods | Oklahoma State University, College of Engineering, Architecture and Technology | -0- | , (405)744-5146 | Oklahoma State University, Engineering Extention, 512 Engineering North, Stillwater, OK 74078 | 35.0 | Radioactive Material Managers |
| Rail Car Emergency Response | Provides a basic knowledge of rail car construction, fittings, venting, regulations and placards. | Texas A&M University System, Texas Engineering Extension Services | -0- | Registrar, (409)845-7952 | Oil and Hazardous Materials Training Division, Texas Engineering Extension Service, The Texas Engineering Extension Service, College Station, TX 77843-8000 | 20.0 | Emergency Responders |
| RCRA 3800(h) Corrective Action Case Development Workshop | -0- | U.S. EPA, OSWER | -0- | R Colbert, (202)475-9847 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Compliance Personnel |
| RCRA Facilities Investigation Guidance Training | Date to be announced | U.S. EPA, OSWER | -0- | J. Perry, (202)382-4654 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Inspectors |
| RCRA Inspector Institute | -0- | U.S. EPA, OSWER | -0- | T. Kasten, (202)475-9320 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Inspectors |
| RCRA Regulations Course | A comprehensive analysis of the law including current developments. | Government Institutes, Inc., | -0- | , (301)251-9250 | Government Institutes, Inc., 966 Hungerford Drive, #24, Rockville, MD 20850 | 12.0 | Compliance Personnel |
| RCRA Training Program | Provides an in-depth review of RCRA for improved hazardous waste management and reduced liability. | Du Pont Safety Services, | -0- | , (800)532-SAFE | DuPont Company, P19-1105 .P.O. Box 4500, Greenville, DE 19807 U.S.A. | 17.5 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| RCRA/SARA | Superfund developments (The 1986 superfund amendments ("SARA"), The future of the remedial technologies industry) | Hazardous Waste Treatment Council, | -0- | (202)783-0870 | HWTC, PO Box 28130, Washington, DC 20038 U.S.A. | 6.00 | Compliance Personnel |
| Real Estate Site Assessment | Presents the basic procedures for performing a site assessment based on site history. Designed for those who require or manage site assessments but don't perform them. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 12.0 | Environmental Auditors |
| Recent Developments and Current Practices in Odor Regulations, Controls and Technology | Lectures on the properties of odor, meteorological factors affecting odor dispersion, odor measurement methodology, sensory evaluation techniques, and community odor survey procedures. | Odor Committee (EE-6), | Solvents, Odors and Gases Control Committee (AE-2) | Registrar, (412)232-3444 | Air and Waste Management Association P.O. Box 2861, Pittsburgh, PA 15230 | 8.00 | Lab technicians |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Recognition and Identification of Hazardous Materials | Identifying hazardous materials problems in the community or workplace, recognizing the presence of hazardous materials and identifying hazardous materials and their associated hazard characteristics. | Eastern Michigan University, Corporate Services | -0- | Registrar, (313)487-2259 | EMU, Corporate Services, 3075 Washtenaw Ave., Ypsilanti, MI 48197 | 8.00 | Emergency Responders |
| Refresher: Facility Survey | Focusis on changes in federal and state regulations, state-of-the-art procedures, new federal guidance documents and reports, and also reviews key aspects of the initial training course. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Asbestos Handlers |
| Refresher: Management Planning | Focusis on changes in federal and state regulations, state-of-the-art procedures, new federal guidance documents and reports, and also reviews key aspects of the initial training course. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Asbestos Handlers |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Refresher: Project Management and Supervision | Focusis on changes in federal and state regulations, state-of-the-art procedures, new federal guidance documents and reports, and also reviews key aspects of the initial training course. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | Univc.sity of Florida-TREEC Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 8.00 | Asbestos Handlers |
| Regional Environmental Conferences | Updates in law at the federal level including RCRA, SARA, CWA, and CAA as well as a summary of state and regional issues | Executive Enterprises, Inc., | -0- | Registrar, 1800-831-8333 | Executive Enterprises, Inc., 22 West 21st Street, New York, NY 10010-6904 | 24.0 | Compliance Personnel |
| Regulatory Liability | Not Documented | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 16.0 | Risk Assessors |
| Respiratory Protection and Chemical Protective Clothing | Provides the training necessary for the proper application of personal protective equipment in the workplace. | Harvard School of Public Health, Office of Continuing Education | -0- | Continuing Education, (617)732-1171 | Havard School of Public Health, Office of Continuing Education Dept. A, 677 Huntington Ave., L-23, Boston, MA 02115 | 28.0 | Industrial Hygienists |
| Respiratory Protection for the Asbestos Abatement Industry | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 24.0 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Respiratory Protection for the Asbestos Abatement Industry | This course is designed to meet training requirements (one of four) for licensure under Florida Statutes 455.301-455.308 as amended by House Bill 1473. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 24.0 | Asbestos Handlers |
| Right To-Know Seminar | Right To-Know/Hazard communication | J.T.Baker, Office of Training Services | -0- | , (201)454-2500 | Office of Training Services, J.T. Baker Chemical Co., 222 Red School Lane, Phillipsburg, NJ 08865 U.S.A. | 14.0 | Safety Personnel |
| Risk Analysis in Environmental & Occupational Health | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Harvard Educational Resource Center & U.S. Department of Health and Human Services | , (617)732-1171 | Office of Continuing Education, Harvard School of Public Health, 667 Huntington Ave., Boston, MA 02115-9957 | -0- | Risk Assessors |
| Risk Assessment | How to protect PRP rights, the impact proposition 65-type legislation on compony risk assessment processes, and how to better communicate scientific risk assessment to public | Center for Energy and Environmental Management (CEEM), | -0- | , (703)250-5900 | CEEM, Box 200, Fairfax Station, VA 22039 | 13.0 | Risk Assessors |
| Risk Assessment | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | Elaine Oldberg, (312)996-7473 | Continuing Education Coordinator, Occupational Safety and Health Center, School of Public Health M/C 922, 2121 W. Taylor, Chicago, IL 60612 | -0- | Risk Assessors |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Risk Assessment and Management for Hazardous Materials: From Cradle to Grave | Program will enhance the participent's knowledge and understanding of methods in management so they are able to apply the process of risk assessment and management in their daily decision-making. | University of Virginia, Center for Risk Management of Engineering Systems | Commonwealth of Virginia, Department of Waste Management | M. Farrish, (804)924-0960 | Short Course on Hazardous Materials, Center for Risk Management, University of Virginia, Thornton Hall, Charlottesville, VA 22901 | 15.0 | Risk Assessors |
| Risk Assessment and Risk Management | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | Angela Molenaar, (612)221-3992 | Cirriculum Development, Midwest Center for Occupational Health and Safety, 640 Jackson Street, St. Paul, MN 55101 | -0- | Risk Assessors |
| Risk Assessment, Risk Management and Risk Communication | More information in the EPA Institute Catalogue | U.S. EPA, OSWER | -0- | M. Setnicor, (202)382-2747 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Risk Assessors |
| Risk Communication of Environmental Hazards | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | John Hopkins Educational Resource Center & U.S. Department of Health and Human Services | Dr. Jacqueline Corn, (301)955-2609 | Continuing Education Director, Dept. of Envir. Health, John Hopkins School of Public Health, 615 N Wolfe Str., Room 1003, Baltimore, MD 21205 | -0- | Risk Assessors |
| Risk Management Training | Topics include: risk management development, hazards analysis, hazard identification, hazards assessment fault trees, and consequence analysis. | Stone and Weber Engineering Corporation, Chemical Plant Safety Program | -0- | Kristina Levins, (609)482-3270 | Stone and Webster Engineering Corporation, 3 Executive Campus, PO Box 5200, Cherry Hill, NJ 08034 | 40.0 | Risk Assessors |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Risk, Regulation & Bioremediation of Halogenated Aromatic Compounds | Not Documented | University of Wisconsin, Engineering Professoinal Development | -0- | Patrick Eagan, (800)262-6243 | University of Wisconsin, Engineering Professional Development, 432 N. Lake Street, Madison, WI 53706 | 21.0 | Process/Environ. Engineers |
| Safe Handling of Hazardous Materials | Comprehensive overview of the major aspects of hazardous chemical waste handling. | University of California - Davis, University Extension | -0- | Program Office, (916)752-6021 | University Extension, University of California, Davis, CA 95616 | 12.0 | General HW Personnel |
| Safety Analysis and Risk Assessment for Chemical Process Industry Practitioners | Consequence assessment and mitigation | AICHE, Center for Chemical Process Safety of AIChE | JBF Associates, Inc. | AIChE Registrar, (212)705-7526 | Continuing Education Dept., AIChE, 345 E. 47th Street, New York, NY 10017 | 37.0 | Risk Assessors |
| Safety and Health Training For Hazardous Waste Personnel | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | Angela Molenaar, (612)221-3992 | Cirriculum Development, Midwest Center for Occupational Health and Safety, 640 Jackson Street, St. Paul, MN 55101 | -0- | Workers Under OSHA |
| Safety and Health Training For Hazardous Waste Personnel - Refresher | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | Angela Molenaar, (612)221-3992 | Cirriculum Development, Midwest Center for Occupational Health and Safety, 640 Jackson Street, St. Paul, MN 55101 | -0- | Workers Under OSHA |
| Safety and Health Training for Hazardous Waste Site Personnel | Sampling and monitoring instruments and techniques, fit-testing of respiratory protective equipment, and detailed information on site sfety planning | Midwest Center for Occupational Health & Safety, | National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control (CDC), Public Health Services (PHS), U.S.Dept. of Health and Human Services (DHHS). | Angela Molenaar, (612)221-3392 | Midwest Center for Occupational Health and Safety, 640 Jackson Street, St. Paul, MN 55101 U.S.A. | 16.0 | Remediation Workers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Safety for Supervisors | Chemical safety, Mechanical safety, Electrical safety, Laser safety, Ergonomics, and Use of video display terminals. | J.T. Baker Chemical Company., Office of Training Services | -0- | . (201)454-2500 | Office of Training Services, J.T. Baker Chemical Co., 222 Red School lane, Phillipsburg, NJ 08865 U.S.A. | 14.0 | Supervisors |
| Sampling and Analysis for Airborne Asbestos Dust | Lectures on asbestos regulations, phase contrast microscopy theory, fiber counting rules, filter mounting methods, air sampling instrumentation and theory and more. Also includes lab sessions. | Environmental Training Corporation, | -0- | Registrar, (919)781-2830 | Registrar, Environmental Training Corporation, 3509 Haworth Drive, Suite 206, Raleigh, NC 27609-7223 | 40.0 | Asbestos Handlers |
| Sampling for Hazardous Materials | -0- | U.S. EPA, OSWER | -0- | Registrar, (513)569-7537 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Lab Technicians |
| SARA Title III | The emergency planning and community Right-To-Know Act of 1986 | Environmental Resource Center, | -0- | . (800)5ERC-ERC | Environmental Resource Center, 608 Southview Circle, Fayetteville, NC 28311 U.S.A. | 7.00 | Compliance Personnel |
| SARA Title III & OSHA Right-To-Know | Step-by-step Procedures for compliance with Title III of the Superfund amendments and OSHA's Hazard communication standard | Environmental Resource Center, | -0- | . (800)5ERC-ERC | 608 Southview Circle, Fayetteville, NC 28311 U.S.A. | -0- | Compliance Personnel |
| SARA Title III - Reporting Requirements | Prenents information for small generators on compliance and regulations. | Sumter Area Technical College, | -0- | Susan McGartlin, 1800-221-8711 | South Carolina Environmental Training Center, Sumter Area Technical College, 506 North Guignard Drive, Sumter, NC 29150 | 5.00 | Small Quantity Generators |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| SARA Title III Compliance Update Course, Focusing on Your Community Right-To-Know Requirements | Presents a pratical understanding of SARA Title III, how and why you must report, how to protect trade secrets when reporting, and how to compile and manage data needed for reporting. | Government Institutes, | -0- | , (301)251-9250 | Government Institutes, Inc., 966 Hungerford Drive, #24, Rockville, MD 20850 | 11.5 | Compliance Personnel |
| SARA Title III Industry Experience in Estimating Chemical Releases | Not Documented | Air & Waste Management Association, | -0- | Registrar, ? | Air & Waste Management Association, P.O. Box 2861, Pittsburgh, PA 15230 | 21.0 | Compliance Personnel |
| SARA Title III Workshop | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 8.00 | Compliance Personnel |
| SARA Title III Workshops: Completing the EPA Form R Release Reports | Provides information about which chemicals to report, new reporting thresholds, completion of the EPA Form R, new MSDS requirements, and recordkeeping requirements. | Pathfinder Associates, Inc., | -0- | , (616)744-8462 | Pathfinder Associates, Inc., P.O. Box 5240, 1906 Mills Avenue, N. Muskegon, MI 49445 | 3.00 | Compliance Personnel |
| SARA Title III, An Industry Guide to Implementation | Covers planning, recycling, energy recevery and disposal for solid wastes. | Center for Professional Advancement, | -0- | Registrar, (201)613-4500 | The Center for Professional Advancement, P.O. Box 964, East Brunswick, NJ 08816-0964 | 16.0 | Compliance Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Selecting Technologies to Reclaim Contaminated Land | Focuses on likely applications of new technology, pros and cons, a case study and costs. | University of Wisconsin, Department of Engineering Professional Development | -0- | Patrick Eagan, (608)263-7429 | The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 | 20.0 | Remediation Workers |
| Selecting Technologies to Reclaim Contaminated Land, Part One: Organic Contaminants | The major remediation approaches for soils contaminated with organics will be reviewed followed by an examination of specific technologies. | University of Wisconsin-Madison, The College of Engineering | -0- | Pat Eagan, 1800-262-6243 | Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 | 20.0 | Remediation Workers |
| SEMCOSH and The Midwest Consortium for hazardous Waste Worker Training | Training for workers at treatment, storage, and disposal facilities. | South Michigan Coalition on Occupational Safety and Health, | -0- | Amy Mock, (313)961-3345 | Director, Hazardous Waste Worker Training Program, 1550 Howard St., Detroit, MI 48216 U.S.A. | 24.0 | Safety Personnel |
| Soils Training Program | Provides a basic background of soils, soils classifications, and various capabilities in regards to sewage disposal | Michigan Department of Public Health, | Soil Conservation Service | Ike Volkers, | Division of Management Services, Bureau of Envir. & Occup. Health, Michigan Department of Public Health, PO Box 30035, Lansing, MI 48909 | -0- | Other |
| Solid Waste Management | Covers planning, recycling, energy recevery and disposal for solid wastes. | Center for Professional Advancement, | -0- | Registrar, (201)613-4500 | The Center for Professional Advancement, P.O. Box 964, East Brunswick, NJ 08816-0964 | 24.0 | Landfill Operators |
| Succeeding At Waste Minimization | Waste Minimization | University of Wisconsin-Madison, Department of Engineering Professional Development . | -0- | Patrick Eagan, P.E., (608)263-7429 | The Wisconsin Center, 702 Langdon Street, Madison,, WI 53706 U.S.A. | 23.0 | Process/Environ. Engineers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Succeeding at Waste Reduction/Minimization: Learn How to Manage Waste on a Cost-effective Step-by-step Basis | Hazardous and non-hazardous waste reduction/minimization, how to apply a systematic, cost-effective, and efficient program. | University of Wisconsin-Madison, Department of Engineering Professional Development | -0- | Registrar, (608)262-1299 | Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, Wisconsin 53706 | 12.0 | Process/Environ. Engineers |
| Sucessfully Resolving Milti-Party Hazardous Waste Disputes: Alturnatives to Litigation | Presents sucessful techniques for resolving liability issues regarding contaminated site clean-up costs without litigation. | Clean Sites, Public Policy and Education Division | American Arbitration Association, Department of Education and Training | , (312)346-5045 | AAA, Department of Education and Training, 205 West Wacker Drive, Suite 1100, Chicago, IL 60606 | 6.00 | General HW Personnel |
| Summer Institute in Environmental Health Studies - Second Annual | A selection of 6 courses offered during a 2 week period. Topics include Toxicology, Risk Communication, and Risk Assessment. Either course credit or Continuing Education Units are available. | John Hopkins University, Department of Environmental Health Sciences | -0- | Dr. J Corn, (301)955-2698 | Summer Institute in Environmental Health Studies, John Hopkins School of Hygiene & Public Health, 615 N. Wolfe St., Rm 1003, Baltimore, MD 21205 | -0- | General HW Personnel |
| Supervising Hazardous Waste Operations | Not documented - Fees to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Washington Educational Resource Center & U.S. Department of Health and Human Services | Jan Stewart, (206)543-1069 | Northwest Center for Occupational Health & Safety, Dept. of Environmental Health, Univ. of Washington, SC-34, Seattle, WA 98195 | -0- | Workers Under OSHA |
| Supervision of Asbestos Abatement Projects: Course and Workshops | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 40.0 | Asbestos Handlers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Supervisors of Hazardous Waste Operations | Provides the 40 hours of off-site health and safety training for employees engaged in hazardous waste operations plus the 8 hours of specalized training for supervisors reruired by OSHA | New Jersey/New York Hazardous Materials Worker Training Center, | National Institute Of Envoronmental Health Sciences | Registrar, (201)-463-450 | NY/NJ Hazardous Materials Worker Training Center, UMDNJ-Robert Wood Johnson Medical School, 45 Knightsbridge Road, Piscataway, NJ 08854 | 48.0 | Workers Under OSHA |
| Supervisors of Hazardous Waste Operations | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | Mitchel Rosen, (201)463-5062 | Program Coordinator, EOSHETC, Dept. of Envir. & Community Med., UMDNJ Robert W. Johnson Med. School, 45 Knightsbridge Dr., Piscataway, NJ 08854 | -0- | Workers Under OSHA |
| Supervisors of Hazardous Waste Site Operations | OSHA required 8 hours of specialized training for supervisors of hazardous waste operations under CERCLA or RCRA | New Jersey/New York Hazardous Materials Worker Training Center, | University of Medicine and Dentistry of New Jersey - Robert Wood Johnson Medical School | Registrar, (201)463-5062 | EOSHETC/DCHE, UMDNJ-Robert Wood Johnson Medical School, 45 Knightsbridge Rd., Piscataway, NJ 08854 | 40.0 | Workers Under OSHA |
| System Releability Engineering and Risk Assessment | Practical methods for evaluating the reliability, safety, and risk associated with complex engineered systems. | JBF Associates, Inc., | -0- | Course Administrator, (615)966-5232 | JBF Associates, Inc., Technology Drive, 1000 Technology Park Center, Knoxville, TN 37932-3341 | -0- | Risk Assessors |
| Tank Truck Emergency Response | Participants are given a basic knowledge of the valves, vents and appurtenances common to tank truck operations. | Texas A&M University System, Texas Engineering Extension Service | -0- | Registrar, (409)845-3418 | Oil & Hazardous Materials Training Division, Texas Engineering Extension Service, Texas A&M University System, College Station, TX 77843-8000 | 20.0 | Transporters |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| The Certificate in Environmental Health and Safety Law | Comprehensive, current information on the full range of environmental, health and safety law issues. The affect of environmental laws and how they are being interpreted and enforced. | Institute for Applied Management and Law, Inc., | -0- | Registrar, (714)760-1700 | Institute for Applied Management and Law, Inc., 610 Newport Center Drive, Suite 1060, Newport Beach, CA 92660 | 40.0 | Compliance Personnel |
| Toxic Sustances Control Act: Regulation, Enforcement and Compliance | Reporting requirements, PMNs, SNURs, Testing procedures, and Enforcement issues. | Government Institutes, Inc., | -0- | , (301)251-9250 | Government Institutes, Inc., 966 Hungerford Dr. #24, Rockville, MD 20850 U.S.A. | 12.0 | Compliance Personnel |
| Toxicology for "Non-Toxicologists" | Industrial safety and health protection as well as to environmental compliance program development | Government Institutes, Inc., | -0- | , (301)251-9250 | Government Institutes, Inc., 966 Hungerford Dr. #24, Rockville, MD 20850 U.S.A. | 7.00 | Safety Personnel |
| Toxicology For Chemists | A dynamic learning experience featuring experts from each major area of toxicology | The American Chemical Society, Department of Continuing Education | -0- | , (202)872-4508 | American Chemical Society, Dept. of Continuing Education, Short Course TOXC8811, 1155 16th St., N.W., Washington, D.C. 20036 U.S.A. | 13.0 | Other |
| Train the Trainer: Training Techniques for Hazardous Materials Trainers | Emphasis is on the basic pratical skills of identifying instructional needs, developing communication skills and planning and delivering instruction. | Sumter Area Technical College, South Carolina Environmental Training Center | -0- | Sue McGartlin, (803)778-1961 | S.C. Environmental Training Center, Sumter Area Technical College, %06 North Guignard Drive, Sumter, SC 29150 | 7.00 | Industrial Hygienists |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Training on Trial Burn Reporting and Setting Permit Conditions | Date to be announced | U.S. EPA, OSWER | -0- | S. Stelmack, (202)382-4500 | U.S. EPA, Rm. 684 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Inspectors |
| Training Program in Toxic Chemical Release Reporting SARA Title III, Section 313 | Learning appropriate skills required for completing the Toxic Chemical Release Reporting Form. | University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School, Universities Occupation Safety and Health Eductional Resource Center | -0- | Peter Creighton, (201)463-4500 | Division of Consumer Health Education, UMDNJ-Robert Wood Johson Medical School, 675 Hose Lane, Piscataway, NJ 08854 U.S.A. | 13.0 | Compliance Officers |
| Training Program in Toxic Chemical Release Reporting: SARA Title II, Section 313 | This course explains the "Toxic Chemical Release Reporting Form R" and the calculations necessary to complete it. | University of Medicine & Dentistry of New Jersey-Robert Wood Johnson Medical School, Environmental & Occupational Safety and Health Education and Training | -0- | Registrar, (201)463-5133 | EOSHETC/ DCHE, UMDNJ-Robert Wood Johnson Medical School, Brookwood Plaza II, 45 Knightsbridge Rd., Piscataway, NJ 08854 | 12.0 | Compliance Personnel |
| Transmission Electron Microscopy Asbestos Analysis Course | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Registrar, (404)894-3806 | Georgia Tech Research Institute, Georgia Institute of Technology, Atlanta, GA 30332 | 96.0 | Asbestos Handlers |
| Transport and Fate of Contaminents in the Subsurface | -0- | U.S. EPA, OSWER | -0- | J. Thornhill, (405)332-8800 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Water Resource Engineer |
| Transportation of Hazardous Materials | Not Documented | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 24.0 | Emergency Responders |
| Transportation of Hazardous Materials and Waste | Offered at varying times. | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | Ramona Cayuela, (213)743-6383 | Director, Continuing Education, Univ. of Southern California, Professional Programs, 3500 S. Figueroa Street, Suite 202, Los Angeles, CA 90007 | -0- | Transporters |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Treatment of Contaminated Soil and Rock | A three day course in conventional and emerging technologies for reclaimation of contaminated land with emphasis on in situ methodologies. | Center for Professional Advancement, | -0- | . (201)613-4500 | The Center for Professional Advancement, PO Box 964, East Brunswick, NJ 08816 | 21.0 | Process/Environ. Engineers |
| Trends and Tools for Industrial Environmental Management | Environmental Management | University of Wisconsin-Madison, Department of Engineering Professional Development . | Institute of Environmental Auditing | Patrick Eagan, P.E., (608)263-7429 | The Wisconsin Center, 702 Langdon Street, Madison,, WI 53706 U.S.A. | 23.0 | Environmental Auditors |
| Trends and Tools for Industrial Environmental Management | Environmental Auditing | University of Wisconsin-Madison, Department of Engineering Professional Development . | Institute of Environmental Auditing | Patrick Eagan, P.E., (608)263-7429 | The Wisconsin Center, 702 Langdon Street, Madison,, WI 53706 U.S.A. | 8.00 | Environmental Auditors |
| Troubleshooting: Activated Sludge Problems in Wastewater Treatment Plants | Provides wastewater plant operators with current information in the area of troubleshooting operations and maintenance problems. | University of Florida, Continuing Education Center, TREEO Center | -0- | Registrar, (904)392-9570 | University of Florida-TREEO Center, 3900 S.W. 63rd Blvd., Gainesville, FL 32608-3848 | 32.0 | Water Resource Engineer |
| U.S. Government Affiars Seminar of the Air and Waste Management Association, 17th Annual | Discusses the environmental challanges of the 90s - including the Clean Air Act, municipal wastes, paying for cleanup, and global warming | Air and Waste Management Association, | | Jane Herblich, (412)232-3444 | Air & Waste Management Association, P.O. Box 2861, Pittsburgh, PA 15230 | 11.0 | General HW Personnel |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Uncontrolled Hazardous Waste Problems, Investigating and Evaluating Solutions | General goal is to address the major topics related to the management of uncontrolled substances. Real world case studies will be used to illustrate pratical application of problem solving techniques | University of Wisconsin-Milwaukee, College of Engineering and Applied Science | -0- | James R. Sleeper, (414)224-3040 | Engineering Registration, 929 North Sixth Street, Milwaukee, WI 53203 | 20.0 | Contingency Planners |
| Underground Storage Tanks | The Michigan Underground Storage Tank Regulatory Program, focusing on the structure of the Hazardous Materials Section of the Michigan State Police Fire Marshal Division. | Engineering Society of Detroit, The Society for Environmental Science | -0- | Registrar, (313)832-5400 | ESD, 100 Farnsworth, Detroit, MI 48202 | 1.00 | UST er/Operat |
| Underground Storage Tanks | Management of underground storage systems. | Texas A&M University System, Texas Engineering Extension Services | -0- | Registrar, (409)845-7952 | Oil and Hazardous Materials Training Division, Texas Engineering Extension Service, The Texas Engineering Extension Service, College Station, TX 77843-8000 | 40.0 | UST Owner/Operators |
| Underground Storage Tanks: Meeting Technical and Regulatory Challenges | A thorough review of the final rule, a discussion of the effect of electrolytic corrosion on piping and tank systems, and analysis of other failure mechanisms. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | UST Owner/Operators |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Underground Storage Tanks: Smart Management and Engineering Applications | UST management, operations, maintenance, engineering and/or installation topics will be covered. Provides all aspects of developing an effectivetank management program. | Government Institutes, Inc., | Hart Environmental Management Corporation | Registrar, (301)251-9250 | Government Institutes, Inc., 966 Hungerford Drive #24, Rockville, MD 20850 | 16.0 | UST Owner/Operators |
| Understanding Industrial Environmental Regulations | Environmental regulations, when they apply, their affects, and strategies to cope with the requirements. | University of Wisconsin-Madison, Department of Engineering Professional Development | -0- | Registrar, (608)262-1299 | Engineering Registration, The Wisconson Center, 702 Langdon Street, Madison, Wisconsin 53706 | 24.0 | Compliance Personnel |
| Understanding Regulations | Not Documented | University of Findlay, The Emergency Response Training Center | -0- | Registrar, (419)424-4647 | University of Findlay, Emergency Response Training Center, 1000 N. Main Str., Findlay, OH 45840 | 16.0 | Compliance Personnel |
| Understanding the Risks, Regulation, and Bioremediation of Halogenated Aromatic Hydrocarbons | Course examines chemistry, fate, transport, and hazards of halogenated aromatic hydrocarbons. Also examines how to use bioremediation techniques to degrade persistant contaminants. | University of Wisconsin - Madison, Biotechnology Center & Environmental Toxicology Center | -0- | 1800-262-6243 | Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 | 18.0 | Consultants |

* Cr. = Semester Credit Hour

| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| University and College Hazardous Waste Conference | Provides a forum for the presentation and exchange of pratical information, experiences, and ideas regarding hazardous waste management at the nation's universities. | Arizona State University, Office of Hazardous Materials Management | -0- | Robert Gomez, (602)965-1823 | Office of Hazardous Materials Management, Arizona State University, Tempe, AR 85287 | 15.5 | University HW Managers |
| Use of Hazard and Operability Studies In Process Analysis | Introduction into "What If" failure mode and effect, fault tree analysis, consequence analysis, concepts of acceptable risk, and avialable computer programs. | AIChE, Continuing Education | -0- | AIChE Registrar, (212)705-7526 | Continuing Education Department, AIChE, 345 E. 47th Street, New York, NY 10017 | 14.0 | Risk Assessors |
| Using Environmental Auditing to Effectively Manage Risk | The basic audit process, vendor hazardous waste applications, compliance applications, real estate site assessments (profiles), and sampling Methodologies. | University of Wisconsin-Madison, Department of Professional Development | -0- | Registrar, (608)262-1299 | Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, Wisconsin 53706 | 20.0 | Risk Assessors |
| Waste Minimization Workshop | -0- | U.S. EPA, OSEWR | -0- | D. Williams, (513)569-7361 | U.S. EPA, Rm. 684, 26 W. Martin L. King Dr., Cincinnati, OH 45268 | -0- | Process/Environ. Engineers |
| Waste Minimization Workshop | Covers emerging waste minimization techniques to reduce cost and avoid non-compliance enforcement | Auburn University, Continuing Engineering Education | Alabama Dept. of Environmental Management | Registrar, (205)942-7900 | Auburn University, Engineering Extension Service, The University Building, 85 Bagby Drive, Suite 100, Birmingham, AL 35209 | 12.0 | Process/Environ. Engineers |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Waste Not Want Not - Meeting of the 1990 Hazardous Materials Mandate | A large selection of 1 1/2 hour courses related to hazardous waste | Academy of Certified Hazardous Materials Managers, | -0- | Coordinator, (317)262-5029 | CHMM Conference Coordinator, ICFAR Environmental Program, 611 North Capitol Avenue, Indianapolis, IN 46024 | 21.0 | Water Resource Engineer |
| Waste Reduction, Recycling, Incineration and Landfills | Not Documented | Illinois Dept. of Energy and Natural Resources, | -0- | Registrar, (217)244-7659 | Illinois Dept. of Energy and Natural Resources, 325 W Adams Street, Room 300, Springfield, IL 62704-1892 | 14.0 | Process/Environ. Engineers |
| Wastewater Treatment Design for the Removal of Priority Pollutants and Toxic Organics | Provides an understanding of causes and effects of toxicity in industrial wastewater. Laboratory and pilot plant procedures will be presented. | Technomic Publishing Company, Inc., | Vanderbuilt University | , (717)291-5609 | Technomic Publishing Company, Inc., 851 New Holland Ave., Box 3535, Lancaster, PA 17604 | 16.0 | Water Resource Engineer |
| Wastewater Treatment in the Organic Chemicals Industry | Persents the scope and status of current regulation, techniques for characterization and control of wastewater pollutents, and wastewater treatment technologies. | Center for Professional Advancement, | -0- | , (201)613-4500 | The Center for Professional Advancement, P.O. Box 964, East Brunswick, NJ 08816 | 21.0 | Water Resource Engineer |
| Water and Wastewater Treatment, Disposal and Reuse | To assess alternatives for treating water, select treatment and disposal systems, design systems and evaluate cost. | George Washington University, Continuing Education Program, School of Engineering and Applied Science | -0- | Cliff Hopkins, (202)994-8521 | Continuing Engineering Education Program, The George Washington University, Washington, DC 20052 | 24.0 | Water Resource Engineer |

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| PROGRAM NAME | COURSE CONTENT | SPONSOR ORGANIZATION | COSPONSOR | CONTACT PERSON | ADDRESS | CONTACT HRS | TARGET |
|---|---|---|---|---|---|---|---|
| Water Quality Engineering for Industry | The course is designed to impart the fundamentals of water pollution control technology. | AICHE, Continuing Education | -0- | Registrar, (212)705-7526 | Continuing Education Department, AICHE, 345 E. 47th Street, New York, NY 10017 | 16.0 | Water Resource Engineer. |
| Workshop on Test Methods for Evaluation of Solid Waste | Provide increased understanding of testing schemes and methods of sampling for hazardous waste, physical testing for bulking and compatability of waste, and quality control. | University of Michigan, Dept. of Environmental and Industrial Health, School of Public Health | -0- | Alice Norberry, (313)763-4265 | Environmental Chemistry Program, 2512 School of Public Health I, University of Michigan, Ann Arbor, MI 48109 | 19.0 | Lab Technicians |

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# REPORT II

## SPECIFIC INFORMATION ON NON-CREDIT, CONTINUING EDUCATION SHORT COURSES

### arranged alphabetically by course title

HAZARDOUS WASTES EDUCATIONAL PROGRAMS

REPORT II

| PROGRAM NAME | COURSE CONTENT | SPONSORING ORGANIZATION | COSPONSOR | EXAM. (Y/N) | PROG. TIME | No. of SESS. | FEE | Cr.CARD (Y/N) | COLL.Cr.(1) or CEU'S(2) | MANUAL (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1-Day Refresher Course for AHERA: Asbestos Abatement Workers | Information about new developments in the asbestos abatement industry, regulatory changes, review of proper work practice, review of health effects of asbestos exposure and state of the work practices | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | N | 10/30/89 | 9 | $100.00 | -0 | -0- | Y |
| 1-Day Refresher Course for AHERA: Contractors/Supervisors | Information about new developments in the asbestos abatement industry, regulatory changes, review of proper work practice, review of health effects of asbestos exposure and state of the work practices | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | N | 10/23/89 | 8 | $100.00 | -0 | -0- | Y |
| 1989 Update on RCRA Conference, 2nd annual | Provides unique insights and a complete update on legal, regulatory, and management developments effecting your hazardous waste management program. | Government Institutes, Inc., | | N | 03/28/89 | 1 | $895.00 | y | 2 | Y |
| 24 Hour Hazardous Waste Transporter Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | N | 07/01/89 | 2 | $450.00 | ? | 2 | ? |

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1

| PROGRAM NAME | COURSE CONTENT | SPONSORING ORGANIZATION | COSPONSOR | EXAM. (Y/N) | PROG. TIME | No. of SESS. | FEE | Cr.CARD (Y/N) | COLL.Cr.(1) or CEU'S(2) | MANUAL (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 Hour Hazardous Waste Treatment, Storage and Disposal Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | N | 06/01/89 | 1 | $450.00 | ? | 2 | ? |
| 24 Hour Workshop for Emergency Response Teams and Workers at TSDF's | Not Documented | University of Wisconsin, Engineering Professoinal Development | -0- | N | 04/10/89 | 1 | $600.00 | -0 | 2 | ? |
| 4-Hour Refresher Course: for AHERA Management Planners | Evaluation and interpretation of survey results, hazard assessment, evaluation and selection of control options and development of an O&M program. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | N | 10/16/89 | 7 | $75.00 | -0 | -0- | Y |
| 4-Hour Refresher Courses: for AHERA Building Inspectors | Information about new developments in the asbestos abatement industry, regulatory changes, review of health effects of asbestos exposure and state of the work practices. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | N | 10/16/89 | 7 | $75.00 | -0 | -0- | Y |
| 40 Hour Hazardous Waste General Site Worker Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | N | 07/01/89 | 1 | $750.00 | ? | 2 | ? |
| 40 Hour Hazardous Waste Operations Training | The program provides 40 hours of intensive training to fulfill current OSHA regulatory requirements. | Lehr Training Institute, | Med-Tex Associates, Inc. & Thorne Environmental, Inc. | Y | 01/09/89 | 9 | $750.00 | N | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| 8 Hour Hazardous Waste Operations Training Annual Refresher Course | The program provides 8 hours of intensive training to fulfill current OSHA regulatory requirements for an annual refresher course. | Lehr Training Institute, | Med-Tex Associates, Inc. & Thorne Environmental, Inc. | Y | 01/20/89 | 6 | $125.00 | N | 2 | Y |
| 8 Hour Hazardous Waste Refresher Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | N | 06/01/89 | 1 | $150.00 | ? | 2 | ? |
| 8 Hour Hazardous Waste Supervisory Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | N | 06/01/89 | 1 | $150.00 | ? | 2 | ? |
| AAAR Seventh Annual Meeting | A selection of introductory and advanced tutorials covers the general subjects of aerosol science and technology, material science, clean-room technology, and man/aerosol interactions | American Association For Aerosol Research, Center for Aerosol Technology, Research Triangle Institute | -0- | N | 10/10/88 | 1 | $260.00 | N | 2 | Y |
| Activated Sludge Process Control Workshop | Designed for wastewater treatment facilities personnel and addresses systems process control analysis, with emphasis on how to use this information in plant operations. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 03/10/89 | 2 | $75.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Advanced Air Sampling for Hazardous Materials | -0- | U.S. EPA, OSWER | -0- | N | 06/26/89 | 3 | -0- | -0 | ? | ? |
| Advanced Emergency Response | Additional training in emergency response beyond the OSHA required 24 hours. | University of Findlay, The Emergency Response Training Center | -0- | N | 08/07/89 | 4 | $700.00 | N | 2 | N |
| Advanced Hazardous Materials Seminar (for Transporters) | Presents the Title 49 CFR Hazardous Materials Regulations in a procedural perspective in order to simplify both shipper and carrier problems. | American Trucking Association, | -0- | N | 05/10/89 | 2 | $350.00 | N | 2 | Y |
| Advanced Seminar: Hazardous Waste Management and Compliance in Michigan | Updated information about Federal and Michigan Hazardous Waste Management laws and regulations. Current activities, policies, interpretations, changing laws/regulations and predictable trends. | Waste Systems Institute of Michigan, | Research and Technology Institute of West Michigan | N | 10/12/89 | 1 | $475.00 | Y | 2 | Y |
| Advanced Supervision of Asbestos Abatement Projects: Annual Update Course | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 03/08/89 | 8 | $295.00 | -0 | 2 | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Advanced System Reliability Engineering | Offers engineers and managers strategies for evaluating the reliability, safety, and risk associated with systems. Emphasis on advanced techniques for solving reliability and safety problems. | JBF Associates, Inc., | -0- | -0- | -0- | -0- | -0- | -0 | -0- | -0- |
| Advanced Waste Water Treatment | Applicability and feasibility of applying advanced waste water treatment concepts to meet predetermined waste quality criteria. | AICHE, Continuing Education | -0- | N | 03/17/90 | 6 | $650.00 | Y | -0- | Y |
| Advanced Water Pollution Control: Physical and Chemical Waste Treatment Sludge Handling and Disposal | Not Documented | University of Texas at Austin, Continuing Engineering Studies | -0- | N | 02/05/90 | 1 | -0- | ? | 2 | ? |
| AHERA 12-Hour Asbestos Awareness Course | An introduction to sources and recognition of asbestos hazards in the workplace. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | N | -0- | -0- | -0- | -0 | -0- | Y |
| AHERA 16-Hour Asbestos Awareness Course: for Operation and Maintenance Workers | Theory and operational hands-on aspects of proper operations and maintenance practices. Emphasis will be placed on safety precautions during all phases of maintenance. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | N | 10/18/89 | 10 | $175.00 | -0 | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| AHERA Asbestos Abatement Workers: Working with Asbestos Abatement | Information and experience to conduct asbestos abatement activities safely. Includes six hours of hands-on activities. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Y | 10/25/89 | 11 | $300.00 | -0 | -0- | Y |
| AHERA Building Inspector/Management/Management Planner Update | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 03/21/89 | 1 | $75.00 | -0 | 2 | ? |
| AHERA Building Inspectors: Inspecting Buildings for Asbestos | Information and hands-on skills for inspecting and sampling buildings for asbestos containing materials according to AHERA Regulations. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Y | 11/13/89 | 5 | $300.00 | -0 | -0- | Y |
| AHERA Contractor and Supervisors: Contracting for Asbestos Abatement | Theory and operational hands-on aspects of proper asbestos abatement, management and supervision. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Y | 10/10/89 | 9 | $400.00 | -0 | -0- | Y |
| AHERA Management Planners: Designing Management Plans for Asbestos Management | Theory and organizational aspects of proper asbestos abatement management plan development in accordance with AHERA Regulations. | Eastern Michigan University, Corporate Services | Asbestos Management Inc. | Y | 11/16/89 | 5 | $200.00 | -0 | -0- | Y |
| AHERA Refresher Course for Asbestos Contractors and Supervisors | This course meets EPA annual refresher training requirements for accredited contractors/supervisors doing abatement and project design work. | University of California - Berkeley, University Extension | -0- | N | 09/07/89 | 2 | $150.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| AHERA Refresher Course for Asbestos Inspectors | This course meets EPA annual refresher training requirements for accredited building inspectors. | University of California - Berkeley, University Extension | -0- | N | 10/05/89 | 2 | $80.00 | Y | 2 | -0- |
| AHERA Refresher Course for Asbestos Inspectors and Management Planners | This course meets EPA annual refresher training requirements for accredited building inspectors and management planners. | University of California - Berkeley, University Extension | -0- | N | 10/05/89 | 2 | $150.00 | Y | 2 | -0- |
| Air and Water Pollution Control Law | Includes sessions on Clean Air and Water Acts enforcement, Wetlands, environmental Management, indoor air pollution, and hazardous waste management. | American Law Institute - American Bar Association, | Environmental Law Institute | N | 05/25/89 | 1 | $500.00 | Y | 2 | Y |
| Air Permitting for New and Modified Sources: A Comprehensive Course on Meeting Clean Air Act Licensing Requirements | How to handle clean air act licensing requirements and to formulate a clean air act licensing plan at the appropriate time in the business planning process. | Executive Enterprises, Inc., | -0- | N | 10/16/89 | 2 | $990.00 | Y | 2 | Y |
| Air Pollution Control | Air pollution causes, transport, effects and monitoring will be reviewed as well as principles and terminology of air pollution control engineering. Major emphasis on prevention and control. | AICHE, Continuing Education | -0- | N | 03/19/90 | 3 | $895.00 | Y | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Air Sampling Practicum for Asbestos Technicians | 4 day hands-on course provides current or potential asbestos sampling technicians with the background they need to understand and begin performing sampling at asbestos abatement sites. | University of California - Berkeley, University Extension | -0- | Y | 09/11/89 | 2 | $650.00 | Y | 2 | -0- |
| Air Surveillance for Hazardous Materials | -0- | U.S. EPA, OSWER | -0- | N | 06/26/89 | 3 | -0- | -0 | -0- | -0- |
| Airborne Asbestos Sampling and Laboratory Analysis | A laboratory course covering techniques of asbestos sampling and analysis. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/19/89 | 4 | $600.00 | N | 2 | -0- |
| Alternative Products for Medical Waste Disposal Handling, Transportation and Storage | Presents information on alternate products and services which will ensure the safest, most cost effective and environmentally sound program for waste disposal. | Randolph, Breyer & Associates, Inc., | Cross / Tessitore & Associates | N | 04/20/89 | 1 | $495.00 | Y | 2 | Y |
| American Society of Safety Engineers 28th Annual Professional Development Conference and Exposition | A variety of short (half day) courses on subjects relating safety, regulation, and environmental protection to industrial situtations. | American Society of Safety Engineers, | | N | 06/12/89 | 1 | $110.00 | Y | 2 | N |

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|---|---|---|---|---|---|---|---|---|---|---|
| American Society of Safety Engineers 28th Annual Professional Development Conference and Exposition - Post Conference Continuing Education Seminars. | How to make high impact safety and health presentations. | American Society of Safety Engineers, | | N | 06/15/89 | 1 | $330.00 | Y | 2 | N |
| American Society of Safety Engineers 28th Annual Professional Development Conference and Exposition - Post Conference Continuing Education Seminars. | Hazard communication for safety practitioners. | American Society of Safety Engineers, | | N | 06/15/89 | 2 | $250.00 | Y | 2 | N |
| American Society of Safety Engineers 28th Annual Professional Development Conference and Exposition - Post Conference Continuing Education Seminars. | Safety Management - Program management and evaluation. Required for ASSE Certificate in Safety Management. | American Society of Safety Engineers, | | N | 06/15/89 | 1 | $330.00 | Y | 2 | N |

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|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Training Workshops | Features demonstrations and experience in sampeling, sample preparation, calibration techniques, analytical procedures, and calculations. | Hach Technical Training Center, | -0- | N | 03/09/89 | 5 | $0.00 | -0 | -0- | N |
| Annual Hazardous Waste Refresher | Not documented - Fees to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Washington Educational Resource Center & U.S. Department of Health and Human Services | N | 11/01/89 | 2 | -0- | ? | 2 | ? |
| Annual Leadership Forum on Solid Waste Management | A tutorial on geochemical and ground water issues will be presented along with a selection of technical sessions centering around solid waste management. | Engineering Society of Detroit, and The Society for Environmental Science, | Michigan Waste Industries Association | N | 03/13/89 | 1 | $200.00 | -0 | -0- | -0- |
| Annual Refresher for Health and Safety for Hazardous Waste Site Investigation Personnel | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | N | 08/22/89 | 12 | $150.00 | ? | 2 | ? |
| Annual Refresher on Health and Safety for Hazardous Waste Site Investigation Personnel | OSHA required 8 hours of annual refresher training for employees involved in hazardous waste operations under CERCLA or RCRA | New Jersey/New York Hazardous Materials Worker Training Center, | University of Medicine and Dentistry of New Jersey Robert Wood Johnson Medical School | N | 06/27/89 | 15 | $150.00 | N | -0- | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Annual Worker Health and Safety Refresher Course | Provides the 8 hours of refresher training required annually by OSHA for employees engaged in hazardous waste operations. | New Jersey/New York Hazardous Materials Worker Training Center, | National Institute Of Environmental Health Sciences | -0- | 01/24/89 | 7 | $150.00 | N | -0- | -0- |
| ANSUL Spill Control Training | Provides information to identify hazardous materials, choose appropriate response actions, and initiate a proper response to a spill. Hands on training is stressed. | ANSUL Spill Control Products Group, | -0- | N | 07/11/88 | 18 | $650.00 | N | -0- | -0- |
| Application of Aqueous Electroltyte Thermodynamics to Pollution Control Problems | Applying current technology to important problems involving abatement of industrial pollutants. | AICHE, Continuing Education | -0- | N | 11/12/90 | 1 | $650.00 | Y | -0- | Y |
| Applied Groundwater Modeling | Course will focus on the application of modeling pratices through utilization of two thourghly tested simulation models. Software will be provided. | Butler University, International Groundwater Modeling Center | -0- | N | 03/20/89 | 2 | 1,195.00 | N | 2 | Y |
| Aquatic Toxicity Reduction in Industrial Effluents | This course will prepare the industrial and municipal POTW discharger for the inevitable requirements to monitor for aquatic toxicity. | Center for Professional Advancement, | -0- | N | 07/27/89 | 1 | $895.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Aquatic Toxicology and Risk Assessment, 13th Symposium | Not Documented | American Society for Testing and Materials, | -0- | N | 04/16/89 | 1 | $70.00 | -0 | 2? | ? |
| Asbestos Abatement for Contract/ Supervisors | Meets the Texas Department of Health requirement for licensure of contractors, supervisors, and owner-operators. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 05/29/89 | 5 | $575.00 | N | 2 | Y |
| Asbestos Abatement for Inspectors | A three day EPA approved course developed in accordance with the EPA model Accrediation Plan for inspector training under AHERA | Tufts University, The Center for Environmental Management | -0- | N | 07/31/89 | 4 | $400.00 | Y | N | N |
| Asbestos Abatement for Management Planners | Course provides training in developing a management plan, exposure, risk assessmsnt, legal liability, and cost estimating. | Tufts University, The Center for Environmental Management | -0- | Y | 07/31/89 | 4 | $650.00 | Y | N | N |
| Asbestos Abatement Projects for the Roofing Industry | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 03/21/89 | 2 | $400.00 | -0 | 2 | ? |
| Asbestos Abatement: Facility Survey and Building Systems | This course meets the training needs for accreditation as inspectors under the 1986 AHERA. | University of Florida, Continuing Education Center, TREEO Center | -0- | Y | 02/20/89 | 4 | $650.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Asbestos Abatement: Management Planning | This course is EPA/AHERA approved for satisfying training requirements for accreditation as management planners. | University of Florida, Continuing Education Center, TREEO Center | -0- | Y | 02/20/89 | 8 | $325.00 | Y | 2 | -0- |
| Asbestos Abatement: Project Management and Supervision | This EPA/AHERA approved accreditation course combines state-of-the-art theory with hands-on practice in asbestos abatement technology through a problem-solving instructional approach. | University of Florida, Continuing Education Center, TREEO Center | -0- | Y | 01/16/89 | 5 | $750.00 | Y | 2 | -0- |
| Asbestos and Hazardous Materials: Train-the-Trainer | This program provides practical instruction in the design and delivery of the training mandated under AHERA, EPA, OSHA, and DOT regulations. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 11/14/89 | 1 | $595.00 | Y | 2 | -0- |
| Asbestos Awareness for the Building Trades | Trains participants on how to identify and treat asbestos containing materials. | Tufts University, The Center for Environmental Management | -0- | N | 08/02/89 | 4 | $275.00 | Y | N | N |
| Asbestos Handeling: Asbestos Abatement Worker Course | Procedures used in asbestos abatement work including 8 hours of hands-on training. Also health effects of asbestos, personal protection and hygien, safety hazards, air monitoring, and regulations. | Hygeia Inc., Environmental Education Department | -0- | Y | 08/21/89 | 2 | $475.00 | -0 | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Asbestos in the Workplace, Fighting a Killer | Presents information on how to unions and contracts to fight asbestos exposure. | New York Committee For Occupational Safety and Health, | Hunter College School of Environmental Health Sciences | N | 05/13/89 | 1 | $15.00 | N | -0- | N |
| Asbestos Inspecters Training Course | Provides information to identify and assess the condition of asbestos containing materials. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/22/89 | 5 | $300.00 | N | 2 | Y |
| Asbestos Inspectors and Management Planners Refresher Course | Refresher course required annually by the EPA. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/14/89 | 5 | $300.00 | N | 2 | Y |
| Asbestos Management and Control Training Courses | A selection of courses dealing with asbestos abatement, planning, training, and awareness. Courses approved by the U.S. EPA. | Institute for Environmental Education, An Asbestos Abatement Services Company | -0- | N | 04/03/89 | -0- | $900.00 | N | 2 | N? |
| Asbestos Management Planners Training Course | Helps professionals determine appropiate response actions and implement them. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/22/89 | 5 | $300.00 | N | 2 | Y |
| Asbestos Regulation: Current Status and Proposed Changes | Provides a framework for understanding current and proposed regulations and the agencies that enforce them. | University of California - Berkeley, University Extension | -0- | N | 12/04/89 | 1 | $125.00 | Y | 2 | -0- |
| Asbestos Training | A variety of courses which Provide Asbestos Hazard Emergency Response Act (AHERA) training which is accredited by the U.S. EPA. | University of Kansas, Division of Continuing Edication | -0- | Y | 05/04/89 | 28 | $495.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Asbestos Training Courses | A selection of courses dealing with asbestos assessment and abatement in buildings. | The Environmental Institute, | -0- | N | 06/05/89 | 16 | $675.00 | Y | 2 | Y |
| Asbestos Training Courses, 1989 | 7 different courses and 3 refresher courses that deal with worker, contractor, and supervisor abatement training, air sampling procedures, inspection procedures, and hazard communication awareness. | Lehr Training Institute, Center for Environmental Education | T.G. Environmental Company | N | -0- | -0- | -0- | N | 2 | Y |
| Asbestos Training: AHERA Awareness Training Course, 16 Hour | Introduces asbestos and asbestos containing building materials (ACBM), procedures for working around ACBM, health effects associated with asbestos, and personal protection. | Hygeia Inc., Environmental Education Department | -0- | N | 08/22/89 | 4 | $185.00 | -0 | -0- | Y |
| Asbestos Training: Airborne Asbestos Sampling and Evaluation Techniques; NIOSH 582 Equivalency Course | Asbestos sampling procedures and fiber counting techniques. Includes a hands-on laboratory. | Hygeia Inc., Environmental Education Department | -0- | N | 07/10/89 | 3 | $660.00 | -0 | 2 | Y |
| Asbestos Training: Bulk Sample Analysis for Asbestos: Polarized Light Microscopy | History and development of the polarized light microscopic technique and the theory behind it. Hands-on laboratory exercises included. | Hygeia Inc., Environmental Education Department | -0- | N | 10/02/89 | 3 | $850.00 | -0 | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Asbestos Training: Respirator Fit Testing Instruction | Qualitative fit testing for half-mask and full-face respirators. | Hygeia Inc., Environmental Education Department | -0- | Y | -0- | -0- | $50.00 | -0 | -0- | Y |
| Asbestos Training: Supervisor/Foreperson Course | Procedures used in asbestos abatement work including 8 hours of hands on training. Instruction of insurance & liability issues, recordkeeping,contract specifications & general supervisory techniques. | Hygeia Inc., Environmental Education Department | -0- | Y | 08/21/89 | 2 | $635.00 | -0 | 2 | Y |
| Asbestos Training; AHERA Awareness Training Course, 2 Hour | Participants will learn what asbestos is, the various forms and uses of asbestos, and the health effects associated with asbestos exposure. | Hygeia Inc., Environmental Engineering Department | -0- | N | 08/22/89 | 4 | $55.00 | -0 | -0- | Y |
| Asbestos Worker Refresher Training | Presents state of the art techniques that result in minimal fiber release and exposure. Annual course is required to maintain Texas Department of Health registration. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/09/89 | 5 | $100.00 | N | 2 | -0- |
| Asbestos Worker Training | Presents state of the art techniques that result in minimal fiber release and exposure. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/08/89 | 5 | $200.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Atmospheric Diffusion Modeling | Emphasis will be placed on using atmospheric diffusion models in process stack design to limit groundlevel concentrations to meet air pollution regulations. | AICHE, Continuing Education | -0- | N | 03/17/89 | 1 | $650.00 | Y | -0- | Y |
| Automated Environmental Information Management | Planning considerations and how a company should go about designing, developing and implementing an automated system | Center for Energy and Environmental Management (CEEM), | -0- | N | 10/05/88 | -0- | $660.00 | N | 2 | Y |
| Backflow Prevention Technician Training Institute | Presents guidelines for acceptable practices for testing, annual inspection, and repair of backflow prevention devices used in cross-connection control programs. | University of Florida, Continuing Education Center, TREEO Center | Florida Section of American Water Works Association | Y | 01/23/89 | 6 | $380.00 | Y | 2 | -0- |
| Basic Ground Water | -0- | U.S. EPA, OSWER | -0- | N | 07/01/89 | 1 | -0- | -0 | -0- | -0- |
| Beneficial Use of Municipal and Industrial Sludge | Sludge recycling, new federal regulations, use of non-municipal sludges and other by-products, contract services and economic factors, and present case histories of projects. | University of Wisconsin-Milwaukee, College of Engineering and Applied Science, Center for Continuing Engineering Education | -0- | N | 06/21/89 | 1 | $550.00 | -0 | 2 | Y |
| Biological Nitrogen and Phosphorus Removal: The Florida Experience II | State-of-the-art training in design and operation of biological nutrient control systems. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 03/22/89 | 1 | $195.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Biological Treatment of Contaminated Soil and Groundwater | Discusses contamination sources and movement, regulatory requirements, containment, sampling and bioreclamation. | Center for Professional Advancement, | -0- | N | 11/28/89 | 1 | $855.00 | N | 2 | Y |
| Bioremediation of Hazardous Waste Sites | -0- | U.S. EPA, OSWER | -0- | N | 04/11/89 | 6 | -0- | -0 | -0- | -0- |
| Bioremediation of Subsurface Environments | -0- | U.S. EPA, OSWER | -0- | N | -0- | -0- | -0- | -0 | -0- | -0- |
| Biotechnology and Waste Treatment | Environmental, industrial, and economic development aspects of biotechnology. Also a tour of the MBI research facility and applied biotechnology pilot plant facilities. | Michigan Biotechnology Institute, | The Michigan Association of Environmental Professionals | N | 08/08/89 | 1 | $25.00 | -0 | -0- | N |
| BRAVO- A PC Program for Quantitative Risl Assessment | Training on how to use BRAVO. Includes a complimentary copy of BRAVO and IRRAS-a user-friendly, state of the art, fault free graphics program. | JBF Associates, Inc., | -0- | -0- | -0- | -0- | -0- | -0 | -0- | -0- |
| Building Inspection and Management Planning for Asbestos | Designed to satisfy the accreditation requirements contained in the 1986 AHERA. For AHERA accreditation as an inspector and management planner, you must complete the 5 day course and exam requirements | University of California - Berkeley, University Extension | -0- | Y | 10/09/89 | 2 | $750.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Building Inspection for Asbestos | Designed to satisfy the accreditation requirements contained in the 1986 AHERA. For AHERA accreditation as an inspector, you must complete the 3 day course and exam requirements. | University of California - Berkeley, University Extension | -0- | Y | 10/09/89 | 2 | $425.00 | Y | 2 | -0- |
| CAMEO II: Computer-Aided Management of Emergency Operations - Apple MacIntosh Version | Hands-on experience with CAMEO. Cameo allows quick access to data on chemical substances, identifies areas affected by toxic chemical releases, plots the course of toxic fumes and projects scenarios. | Eastern Michigan University, Corporate Services | -0- | Y | 11/27/89 | 4 | $800.00 | -0 | -0- | Y |
| CAMEO II: Computer-Aided Management of Emergency Operations - Dos Version | Hands-on experience with CAMEO. Cameo allows quick access to data on chemical substances, identifies areas affected by toxic chemical releases, plots the course of toxic fumes and projects scenarios. | Eastern Michigan University, Corporate Services | -0- | N | 01/29/89 | 3 | $210.00 | -0 | -0- | Y |
| CERCLA Orientation | -0- | U.S. EPA, OSWER | -0- | N | 04/01/89 | 4 | -0- | -0 | -0- | -0- |
| Certificate in Hazardous Waste Studies | Intensive study in hazardous waste to meet rapidly increasing technology and new legislation | Findlay College, Office of Hazardous Waste Studies | -0- | Y | -0- | -0- | -0- | -0 | 2 | Y |
| Certificate Program in Hazardous Materials Management | Comprehensive, parctical course of study in hazardous materials management | University of California, University Extension | -0- | Y | -0- | -0- | -0- | Y | 1 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Certification Program in Hazardous Materials Management | Engineering control and management of hazardous materials | Oklahoma State University, Engineering Extension | -0- | Y | 10/01/88 | -0- | -0- | N | 1 | -0- |
| Certified Hazardous Materials Manager | Application of engineering and managerial technology to identify, evaluate and eliminate or reduce risks, involving conditions related to hazardous materials | Institute of Hazardous Material Management, | -0- | Y | -0- | -0- | -0- | N | 1 | Y |
| Certified Hazardous Materials Manager (CHMM) Review Course | Review for the Certified Hazardous Material Manager Examination | Wayne State University, Office of Environmental Health and Safety | -0- | N | 10/29/87 | -0- | $95.00 | N | 2 | Y |
| ChemADVISOR Briefing: The OSHA Proposed Standard for Occupational Exposure to Bloodborne Pathogens | Provides and overviews information about OSHA's proposed standard to protect laboratory and hospital workers from exposure to HBV and HIV. | Eastern Michigan University, Corporate Services | -0- | N | 12/07/89 | 2 | $95.00 | -0 | -0- | Y |
| ChemADVISOR Canadian WHMIS and Hazardous Products Act: A one-day seminar covering the Canadian Workplace Hazardous Materials Information System | Canadian WHMIS legislation and Hazardous Products Act for the determination of a controlled product, its labeling and information needed in a Canadian Materials Safety Data Sheet and more. | Eastern Michigan University, Corporate Services | -0- | N | 10/30/89 | 3 | $175.00 | -0 | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| ChemADVISOR Chemical/Process Modules: A four-hour seminar based on the identification and recognition of health and other hazards of chemicals and chemical processes | This course supplements the ChemADVISOR Hazard Communication course by providing information about the hazards of specific materials or processes of interest to the participants. | Eastern Michigan University, Corporate Services | -0- | N | 10/31/89 | 5 | $95.00 | -0 | -0- | Y |
| ChemADVISOR Handling Toxic Materials in Laboratories | Developing and implementing a program for compliance with the OSHA Standard for Occupational Exposure to Toxic Substances in Laboratories. | Eastern Michigan University, Corporate Services | -0- | N | 12/08/89 | 5 | $200.00 | -0 | -0- | Y |
| Chemical Emergency and Hazardous Waste Worker Training | Includes both classroom and hands-on training to help workers protect their safety and health | International Chemical Workers Union, | United Steel Workers of America & The University of Cincinnati | -0- | -0- | -0- | -0- | -0 | -0- | -0- |
| Chemical Plant Accidents: A Workshop on Causes and Prevention | The course stresses the practical and basic causes of actual industrial accidents by studying numerous case histories and offers recommendations to avoid similar accidents. | AICHE, Continuing Education | -0- | N | 11/10/90 | 1 | $625.00 | Y | -0- | Y |
| Chemistry for the First Responder | Basic instruction to meet mandated training requirements for all government employees who respond to hazardous material incidents. | University of Florida, Continuing Education Center, TREEO Center | Florida Department of Community Affairs | N | 01/28/89 | 5 | $5.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Chemistry of Hazardous Waste | Presents basic chemistry as related to hazardous waste. It is designed for non-technical personnel. | New Jersey Institute of Technology, Division of Continuing Education | -0- | N | 05/10/89 | 1 | $295.00 | Y | 2 | ? |
| Chemodynamics, Transport and Fate of Chemicals in the Environment | Relationship between physical and chemical properties and transport, their persistance in the biosphere, their partitioning in biota, and toxilogical and epidemiological forcasting | AIChE, Continuing Education | -0- | N | 04/01/89 | 4 | $595.00 | Y | 2 | -0- |
| Chlorination Equipment Repair and Troubleshooting | This course addresses chlorinator operation and maintenance. Instructors demonstrate how to disassemble several chlorinators. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 06/16/89 | 1 | $100.00 | Y | 2 | -0- |
| Chlorine Handling and Containment | Proper chlorine handling techniques. Demonstrations and hands-on practice in repairing a simulated leak using Chlorine Emergency Repair Kits A & B. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 02/21/89 | 4 | $125.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Chlorine Safety: Technician Training and Certification | Reacting to chlorine emergencies, diagnosing the severity of problems and planning and implementing remedial actions. Basic maintenance, use of airpacks, and use of A & B emergency repair kits. | University of Florida, Continuing Education Center, TREEO Center | -0- | Y | 06/12/89 | 2 | $300.00 | Y | 2 | -0- |
| Chlorine Seminar | Safe use of chlorine in water and wastewater treatment processes. Chlorine's chemical behavior and its reaction. New chemical-specific regulations and their impact on chlorine usage. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 01/24/89 | 6 | $75.00 | Y | 2 | -0- |
| CHMM Review Course and Certification Examination | Academy of Hazardous Materials Management | The Chicago Metropolitan Chapter of the Academy of Hazardous Materials Management, | The Center for Hazardous Waste Management at IIT Center, The Office of Continuing Education at Illinois Institute of Technology, and the Institute of Hazardous Materials Management | N | 09/26/88 | -0- | $375.00 | N | 2 | Y |
| Clay Liners and Covers for Waste Disposal Facilities | Presents latest research findings concerning construction, performance, and testing of clay liners and covers | University of Texas at Austin, Civil Engineering Department | -0- | N | 05/02/89 | 1 | $630.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Clean Air Regulation Briefing | Examines emerging clean air regulations under the Bush administration. | Executive Enterprises, Inc., | -0- | N | 11/29/89 | 1 | $895.00 | Y | 2 | -0- |
| Clean Water Course | Provides the latest information on legislative, judicial, and regulatory developments regarding industrial and municipal wastewater discharge. | Executive Enterprises, Inc., | -0- | N | 04/27/88 | 1 | $990.00 | Y | 2 | Y |
| Clean Water Regulation Briefing | Topics include: developments in permitting procedures, pretreatment-stormwater runoff, clean water act, bio monitoring and toxicity based limits, innovative technologies, and permit negotiation. | Executive Enterprises, Inc., | -0- | N | 10/23/89 | 1 | $990.00 | Y | 2 | Y |
| Collection, Treatment and Disposal of Liquid Wastes from the Petroleum and Petrolchemical Industries | Not Documented | University of Texas at Austin, Continuing Engineering Studies | -0- | N | 10/30/90 | 1 | -0- | ? | 2 | ? |
| Comar Hazard Communication Trainer Assistance Program | Uses a train the trainer approach to prepare trainers and at-risk employees to use the DoD/Federal Hazard Communication Training Program (FHCTP). | Comar Associates, | | N | -0- | -0- | -0- | -0 | -0- | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Community Relations in Superfund: Concepts and Skills for Response Staff | -0- | U.S. EPA, OSWER | -0- | N | 04/11/89 | 4 | -0- | -0 | -0- | -0- |
| Community Right to Know | Provides information on what the laws are, compliance strategy, chemical inventory, enforcement, and case studies. | University of California - Davis, University Extension | -0- | N | 05/16/89 | 1 | $75.00 | Y | 2 | Y |
| Compliance With TSCA Regulations Course | Not Documented | Government Institutes, Inc., | -0- | N | 05/23/89 | 1 | -0- | ? | 2 | ? |
| Complying with AB 2588 - The California Air Toxics "Hot Spots" Information and Assessment Act | Provides information on what the laws are, who needs to comply, and how to prepare emmisions reports. | University of California - Davis, University Extension | -0- | N | 05/18/89 | 1 | $125.00 | Y | 2 | Y |
| Complying With New Standards for Treating Toxic Wastes and Drinking Water | Provides the latest information on the development of standards for treating toxic wastes, residual siudges, and drinking water. | University of Wisconsin-Madison , College of Engineering - Dept. of Engineering Professional Development | -0- | N | 11/28/88 | 1 | $425.00 | Y | 2 | Y |
| Computer Implementation of SARA Title III/Form R | Data gathering, computer processing and reporting for the Toxic Release Inventory Form R and SARA Title III for the July 1990 Report. | Eastern Michigan University, Corporate Services | -0- | N | 04/06/89 | 1 | $175.00 | -0 | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Computer Implementation of your EPA/OSHA Right-to-Know Program | Data gathering, computer processing and reporting for compliance with SARA Title III and OSHA Hazard Communication Act: March 1990 Report. | Eastern Michigan University, Corporate Services | -0- | N | 10/19/89 | 1 | $150.00 | -0 | -0- | Y |
| Conference and Exhibition on Pollution Control Technologies | Limiting environmental liabilities on "Toxic Real Estate", Radon and its impact on human health and Real Estate, an update on Underground Storage Tanks, and Hydrocarbon contamination and clean up. | ACOME AND ASSOCIATES LTD. Pollution Control Specialists, | Zeff and Zeff and Materna, IEP, Inc., Geosoft, Testing Engineers and Consultants, Inc., Fixation and Treatment Technologies, Ltd., and Argus Pressure Grouting, Inc. | N | 10/24/89 | 1 | $695.00 | -0 | -0- | Y |
| Contract Administ. Training for Project Officers, Work Assignment Managers and Delivery Order Officers | -0- | U.S. EPA, OSWER | -0- | N | 04/11/89 | 3 | -0- | -0 | -0- | -0- |
| Contract Administ. Training for Supervisors and Managers | -0- | U.S. EPA, OSWER | -0- | N | 04/14/89 | 15 | -0- | -0 | -0- | -0- |
| Corporate Waste Minimization | A senior spokesperson for Ford Motor Company will speak on the Company's waste minimization program. | Engineering Society of Detroit, The Society for Environmental Science | -0- | N | 03/16/89 | 1 | $20.00 | Y | -0- | N |

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|---|---|---|---|---|---|---|---|---|---|---|
| Cross-Connecti on Control 'Program and Ordinance Workshop' | Topics include: an introduction to backflow prevention and cross-connection control, essen ials of a cross-connection control program, model programs - methods & devices, and liability. | University of Florida, Continuing Education Center, TREEO Center | Florida Section of American Water Works Association | N | 04/26/89 | 2 | $225.00 | Y | 2 | -0- |
| Current Health and Safety Issues for the Campus Environment | Designed to help academic institutions manage their environment in order to reduce liability, avoid regulatory citations, and mitigate negitive public relations. | Quality Safety Services, | | N | 03/22/89 | 1 | $250.00 | N | -0- | Y |
| Current Issues in PCB Compliance | The course tells how to prepare for a PCB inspection from the EPA | Executive Enterprises, Inc., | -0- | N | 10/19/89 | 1 | $895.00 | Y | 2 | -0- |
| Customized CERCLIS Reporting | Available upon request | U.S. EPA, OSWER | -0- | N | -0- | -0- | -0- | -0 | -0- | -0- |
| Data Quality Objectives (DQO) | -0- | U.S. EPA, OSWER | -0- | N | -0- | 1 | -0- | -0 | -0- | -0- |
| Designing Asbestos Response Actions | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 03/07/89 | 3 | $450.00 | -0 | 2 | ? |
| DuPont Fundamentals of RCRA Seminar | Teaches hands-on methods for complying with RCRA completely and economically. | DuPont Environmental Management Services, | | N | 01/24/89 | 12 | 1,350.00 | N | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| DuPont Groundwater Hydrology Seminar | Presents information on how a groundwater system functions, symptoms of groundwater pollution, sampling methods, and how to evaluate groundwater consultants and their reports. | DuPont Environmental Management Services, | | N | 08/15/89 | 3 | $995.00 | N | -0- | Y |
| DuPont SARA Title III Seminar - Overview of Title III for Business and the Community | Presents a comprehensive study of the law itself - the facilities and substances it covers, its reporting requirements, and its timetable for compliance. | DuPont Environmental Management Services, | | N | 02/22/89 | 12 | $595.00 | N | -0- | Y |
| DuPont SARA Title III Seminar - Section 313 Compliance Procedures | Provides in depth discussion on Section 313 compliance information. | DuPont Environmental Management Services, | | N | 02/23/89 | 12 | $595.00 | N | -0- | Y |
| DuPont Waste Minimization Training Seminar | Presents information on how to develope and put into pratice a waste minimization scheme. | DuPont Environmental Management Services, | | N | 07/25/89 | 4 | $995.00 | N | -0- | Y |
| Effective Techniques for Contaminated Groundwater Treatment | Presents techniques that have been successful in detecting and treating contaminated groundwater and restoring it to drinking water quality. | University of Wisconsin-Madison , College of Engineering - Dept. of Engineering Professional Development | -0- | N | 11/10/88 | 1 | $425.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Effective Techniques for SARA Section 313 Data Management and Reporting | Presents proven techniques on how to manage data collection efforts, calculate releases and treatment efficiences, and avoid common errors. | Center for Energy and Environmental Management, | -0- | N | 04/10/89 | 2 | $650.00 | N | 2 | Y |
| Emergency Handling of Chlorine | Basic instruction to meet mandated training requirements for all government employees who respond to hazardous material incidents. | University of Florida, Continuing Education Center, TREEO Center | Florida Department of Community Affairs | N | 01/26/89 | 5 | $5.00 | Y | 2 | -0- |
| Emergency Preparedness Seminar | Concepts and elements found in emergency preparedness programs for chemical/process facilities. State regulations will also be discussed. | Stone and Weber Engineering Corporation, Chemical Plant Safety Program | -0- | N | 09/18/89 | 5 | $425.00 | -0 | -0- | -0- |
| Emerging Issues in Environmental Management | This course will examine legal aspects of environmental data management, introduce software available to facilitate the work of environmental managers, and study crisis and non-crisis techniques. | University of Wisconsin-Madison , Department of Engineering Professional Department | -0- | N | 11/01/89 | 1 | $350.00 | Y | 2 | Y |
| Energy fron Biomass and Wastes | Presents methods of supplying energy from land and water based biomass as well as organic wastes. | Institute of Gas Technology, | | N | 02/13/89 | 1 | $550.00 | N | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Engineers and Consultants as Witnesses: Tips on Testifying in Environmental and Engineering Cases | Provides engineering and environmental professionals with a roadmap of the litigation process. Learn how to testify effectively in environmental and engineering cases. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 02/02/89 | 1 | $195.00 | Y | 2 | -0- |
| Environment '89 Seminar | Designed for professionals involved in environmental compliance. Exhibits will be open | Federation of Environmental Technologists, | | N | 03/07/89 | 1 | $175.00 | N | 2 | Y |
| Environmental Audit | Management , Planning, Regulatory requirements, and conducting the audit | Fedral Publication Inc., A Longman Group Company | -0- | N | 10/21/86 | -0- | $650.00 | N | 2 | Y |
| Environmental Audits Course: Protecting Your Company and Yourself | Learn the how and why of auditing your company's environmental compliance | Government Institutes, Inc., | | N | 03/16/89 | 2 | $895.00 | Y | 2 | Y |
| Environmental Audits: Protecting Your Company and Yourself | Topics include: legal requirements for doing audits, how to t. in auditors, how to protect confidentiality, what tools you need for an audit, and additional benefits of audits. | Government Institutes Inc., | Hart Environmental Management Corporation | Y | 09/26/89 | 1 | $895.00 | Y | 2 | Y |
| Environmental Claims and Litigation Conference, Second Annual | Strategies, tactics and techniques for prevention, negotiation, settlement, and litigation of environmental claims. | Executive Enterprises, Inc., | -0- | N | 10/11/89 | 1 | $690.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Environmental Cleanup Responsibility Act | Course will familiarize New Jersey property owners and others involved in the transfer of properties with the requirements of ECRA | New Jersey Institute of Technology, Division of Continuing Education | -0- | N | 02/02/89 | 1 | $295.00 | Y | 2 | ? |
| Environmental Health & Safety Law | Overview of environmental regulations for hazardous materials and hazardous wastes | Institute for Applied Management and Law, Inc., | -0- | N | -0- | -0- | -0- | N | 2 | Y |
| Environmental Insurance Law Institute | Evaluates the key issues, litigation strategies, and litigation tactics in environmental insurance actions. | Executive Enterprises, Inc., | -0- | N | 10/16/89 | 3 | $895.00 | Y | 2 | -0- |
| Environmental Law | Aquisition of knowledge and skills to develop proficiency as a practitioner; provision of information on recent legal developments | American Law Institute-American Bar Association, Committee on Continuing Professional Education | The Environmental Law Institute and The Smithsonian Institution | N | 02/16/89 | -0- | $375.00 | Y | 2 | Y |
| Environmental Laws and Regulations Compliance Course | A comprehensive analysis of the major environmental statutes and regulations that effect business - especially under the Bush administration. | Government Institutes, Inc., | | N | 02/15/89 | 2 | $895.00 | Y | 2 | Y |
| Environmental Laws and Regulations: 1989 Update Course | A complete update on new and forthcoming regulations that impact your compliance programs. | Government Institutes, Inc., | -0- | N | 10/26/89 | 1 | $895.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Environmental Legislation Update | Update on CWA Amendments, SARA Title III, and Right-To-Know Regulations. | South Carolina Environmental Training Center, | Trident Technical College | N | 06/11/87 | 1 | $95.00 | N | -0- | Y |
| Environmental Management Roundtable | Discussion of common concerns of environmental management, where special challenges facing those charged with environmental management responsibilities will be discussed. | Government Institutes, Inc., | -0- | N | 10/04/89 | 1 | $995.00 | Y | -0- | Y |
| Environmental Management Software Seminar | Provides a comprehensive exposure and hands-on review of several of the latest environmental management software systems | Waste Systems Institute of Michigan, Inc., | -0- | N | 03/21/89 | 1 | $475.00 | Y | -0- | N |
| Environmental Quality Assurance | Presents procedures for quality assurance planning, data management, and reporting for HW site investigations. | University of California - Davis, University Extension | -0- | N | 09/15/89 | 1 | $125.00 | Y | 2 | Y |
| Environmental Regulation and Auditing of Federal Facilities | Provides information on how prepare for a federal facility environmental audit. | Executive Enterprises, Inc., | -0- | N | 07/31/89 | 4 | $895.00 | Y | 2 | -0- |
| Environmental Regulation Conference | An update of developments at the federal level and state/regional issues. | Executive Enterprises, Inc. | -0- | N | 09/14/88 | -0- | $895.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Environmental Regulation Course | A basic comprehensive course on environmental regulation. | Executive Enterprises, Inc., | -0- | N | 03/10/89 | 3 | $990.00 | Y | 2 | Y |
| Environmental Regulations and Compliance Course - Fifteenth Annual | A comprehensive two day seminar on current environmental requirements and compliance. | Professional Seminar Associates, Inc. | -0- | N | 04/20/89 | 5 | $775.00 | N | 2 | Y |
| Environmental Regulations for Paints and Coatings Facilities | Presents information about the most inportant consequences of recent regulation and provides participants with the tools to bring coatings facilities into compliance. | University of California - Berkeley, Continuing Education in Engineering | -0- | N | 05/02/89 | 1 | $695.00 | Y | 2 | Y |
| Environmental Risk Assessment | -0- | U.S. EPA, OSWER | -0- | N | 04/04/89 | 6 | -0- | -0 | -0- | -0- |
| Environmental Training: Requirements, Strategies, and Resources for Environmental Managers and Trainers | Environmental training; legal requirements, liability, methods, implementing a program, evaluation, and case studies. | Government Institutes, Inc., | -0- | N | 11/02/89 | 1 | $895.00 | Y | 2 | Y |
| Environmental Update | This luncheon will discuss environmental issues that are important to the construction industry, including compliance with local, state, and federal regulations. | Engineering Society of Detroit, The Society for Environmental Science | Construction Committee | N | 03/13/89 | 1 | $22.00 | Y | -0- | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Environmental-Analytical Tele-conferance on Quality | Quality in Environmental Sampling ,Analysis, Reporting and Decision Making. | Hewlett-Packard, | -0- | N | 11/10/88 | -0- | $95.00 | N | 2 | Y |
| EPA Clean-up Contracting Institute: New Opportunities and Responsibilities for EPA Contractors | Key issues include: contractor roles, liability, and management from different viewpoints; government's, government contractor's, industry's, industry contractor's, congress', and insurer's. | Executive Enterprises, Inc., | -0- | N | 10/05/89 | 1 | $990.00 | Y | 2 | Y |
| Epidemiology | Several courses at different universities are offered at varying times. Course fees are to be announced. | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Midwest Center for Occupational Health and Safety & U.S. Department of Health and Human Services | N | -0- | -0- | -0- | ? | 2 | Y |
| ESD/NSWMA Groundwater or Geochemistry Certificate Course | A course for those responsible for groundwater monitoring and compliance for waste management facilities. | Engineering Society of Detroit and NSWMA, | | N | 03/13/89 | 1 | $150.00 | Y | 2 | N |
| Establishing an Operations and Maintenance Program | Topics include: establishing and implementing an operations and maintenance program, applicable regulations, health effects of asbestos exposure, waste disposal, medical surveillance and more. | University of California - Berkeley, University Extension | -0- | N | 10/24/89 | 1 | $300.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Evaluating Process Hazards: The Uses and Limitations of Quantitative Risk Assessment | Provides an understanding of Quantitative Risk Assessment (QRA); how it can be used, its limitations, and alternatives | Chemical Manufacturers Association, | -0- | N | 07/18/89 | 3 | $150.00 | Y | 2 | N |
| Examining Management Issues of Remediation Projects | Focuses on how several different professions view remediation problems and how their views effect the approaches they use to solve them. | University of Wisconsin, Department of Engineering Professional Development | -0- | N | 06/25/89 | 1 | $300.00 | Y | 2 | Y |
| Executive Summary on Asbestos in Buildings | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | N | 02/15/89 | 6 | $95.00 | -0 | 2 | ? |
| Federal Hazardous Waste Regulations | Program provides the needed up-to-date regulatory information concerning the safe management of hazardous waste | New Jersey Institute of Technology, Division of Continuing Education | -0- | N | 04/11/89 | 1 | $250.00 | Y | 2 | ? |
| Federal, Wisconsin, & Illinois UST Regulations | Overview of the federal, Wisconsin and Illinois underground storage tank regulations. | Federation of Environmental Technologists, | -0- | N | 07/20/89 | 1 | $50.00 | N | 2 | N |
| Field Monitoring | Presents field monitoring techniques with emphasis on ground water protection using portable gas chromatograhy and other field instrumentation | University of Toledo, Division of Continuing Education | -0- | N | 04/06/89 | 1 | $415.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Field Monitoring and Sampling of Hazardous Materials | Presents pratices and procedures for collecting multi-media HW samples. | University of California - Davis, University Extension | -0- | N | 07/06/89 | 1 | $175.00 | Y | 2 | Y |
| Financial Reporting of Environmental Exposures | A practical problem solving session regarding the financial reporting of environmental matters. | Executive Enterprises, Inc., | -0- | N | 09/12/89 | 2 | $895.00 | Y | 2 | -0- |
| Financing and Implementing Municipal Solid and Liquid Waste Disposal Facilities | How to form a comprehensive system for the disposal of solid waste, including environmental, legislative, and financial considerations. | Executive Enterprises, Inc., | -0- | N | 10/02/89 | 1 | $990.00 | Y | 2 | Y |
| First Party Policy Environmental Claims and Litigation Conference | Prepares individuals to strongly represent themselves or clients in environmental insurance law battles. | Executive Enterprises, Inc., | -0- | N | 09/21/89 | 1 | $895.00 | Y | 2 | -0- |
| Fundamentals of Environmental Auditing | Provides basic understanding of auditing techniques, procedures, and related regulations. | University of California - Davis, University Extension | -0- | N | 06/07/89 | 1 | $175.00 | Y | 2 | Y |
| Fundamentals of Fire and Explosion Hazards Evaluation | Provides basic understanding of chemical and physical principles employed in fire and explosion hazard evaluation. | AIChE, Continuing Education | -0- | N | 03/30/89 | 5 | $595.00 | Y | 2 | -0- |
| Fundamentals of Ground-Water Contamination | Technical aspects of ground-water protection, contamination, and cleanup | American Ecology Services, Inc., | -0- | N | -0- | 2 | $685.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Fundamentals of Groundwater Contamination | Mechanisms of ground-water contamination and the techniques for investigating, monitoring, and responding to leaking underground storage tank and other ground-water quality problems. | Geraghty and Miller Environmental Services, | American Ecology Services, Inc. | N | 10/26/89 | 2 | $795.00 | -0 | 2 | Y |
| Fundamentals of Hazardous Materials Safety and Chemical Emergency Incident Response | Educate and inform first responders on the proper and safe reaction during the first minutes of a hazardous materials incident or chemical spill. | Sumter Area Technical College, South Carolina Environmental Training Center | -0- | N | 09/24/87 | 1 | $195.00 | N | 2 | Y |
| Fundamentals of Hazardous Materials Seminar | Provides a working knowledge of hazardous materials for the transportation industry. | American Trucking Association, | -0- | N | 02/21/89 | 4 | $350.00 | N | 2 | Y |
| Funds Certifying Officer Training | -0- | U.S. EPA, OSWER | -0- | N | 04/27/89 | 1 | -0- | -0 | -0- | -0- |
| Government Contractors and Environmental Liability | A sampling of the topics include: framework of contractor involvement, the federal superfund law, contractors and federal facility compliance, federal enforcement of environmental laws, and others. | Government Institutes, Inc., | -0- | N | 10/31/89 | 1 | $895.00 | Y | 2 | Y |
| Groundwater Modeling Short Course Series | A selection of six short (5 day) courses on different groundwater modeling topics | Butler University, Holcomb Research Institute | -0- | N | 03/20/89 | 7 | -0- | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Groundwater Treatment Technologies | Focuses on current and emerging technologies for the cleanup of contaminated groundwater. | University of California - Davis, University Extension | -0- | N | 06/06/89 | 1 | $125.00 | Y | 2 | Y |
| HAZ/MAT Management and Compliance Update Seminar | Latest regulation promulgated by the SARA, OSHA, HMTA | Spill Control Association of America, Division of Marine Pollution Control | -0- | N | 06/24/87 | -0- | $95.00 | N | 2 | Y |
| Hazard Communication and Right To Know | Several courses at different universities are offered at varying times. Course fees are to be announced. | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Midwest Center for Occupational Health and Safety & U.S. Department of Health and Human Services | N | -0- | -0- | -0- | ? | 2 | Y |
| Hazard Communication for the Industrial Hygienist | Covers theory, Pratice, legal aspects, pratical techniques, and policy issues of hazard communication for the industrial hygienist. | University of Maryland, Center for Professional Development | The National Center for Hazard Communication | N | 03/21/89 | 6 | $595.00 | Y | 2 | Y |
| Hazard Communication: A Program to Assist Employers with Their Hazard Communication Training Requirements | Information about hazardous chemicals detection methods and observations, employee protective measures, health and physical hazards of chemicals and information on the Hazard Communication Standard. | Eastern Michigan University, Corporate Services | -0- | N | 10/31/89 | 5 | $200.00 | -0 | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazard Communication: Worker Training and Right-To-Know | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | N | 12/13/89 | 1 | $800.00 | ? | 2 | Y |
| Hazard Communications Programs for OSHA Compliance | Not Documented | The Center for Professional Development, | -0- | N | 03/28/89 | 1 | $870.00 | -0 | 2 | ? |
| Hazard Control in the Chemical and Allied Industries | Developes a systematic means for evaluating the risks of chemical operations. | AIChE, Continuing Education | -0- | N | 04/03/89 | 3 | $595.00 | Y | 2 | -0- |
| Hazardous and Solid Waste Minimization Course | Provides definitions and illustrations of pratical waste reduction strategies, an analysis of policy and technical issues, case studies, guidlines for waste reduction program development. | Government Institutes, Inc., | -0- | N | 03/28/89 | 1 | $895.00 | Y | 2 | Y |
| Hazardous Chemical Safety | Overview of the problems encountered every day when using hazardous chemicals | J. T. Baker Chemical Company., Office of Training Services | -0- | N | -0- | -0- | $395.00 | N | 2 | Y |
| Hazardous Chemical Spill Response | Presents proper techniques to handle chemical spills up to 55 gallons. Also, practicing the skills that have been discussed. | J.T. Baker Chemical Company., Office of Training Services | -0- | N | -0- | -0- | $595.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Chemical Spill Response Workshop | Information about the latest spill response techniques, spill control options, and media and equipment. Includes "hands on" exercises. | J.T. Baker Inc., | -0- | N | 10/02/89 | 6 | $745.00 | -0 | -0- | Y |
| Hazardous Chemicals Safety Seminar: An Awareness Program in Chemical Safety | A complete overview of the problems encountered every day when using hazardous chemicals. Designed to raise your level of awareness of hazards around you, and what should be done to work safely. | J.T. Baker, | -0- | N | 09/18/89 | 13 | $595.00 | -0 | 2 | Y |
| Hazardous Material Control and Emergency Response | Basic information needed to respond to an incident and firm foundation for the challenges that lie ahead in the new frontier of hazardous material control. | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | N | 10/19/87 | -0- | $625.00 | N | 2 | Y |
| Hazardous Material Emergency Response | Meets the OSHA requirements for hazardous material training. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/15/89 | 9 | $895.00 | N | 2 | -0- |
| Hazardous Materials | Basic information to help people new to the field to deal with their hazardous waste. Incudes information for small quantity generators. | Sumter Area Technical College, | -0- | N | 06/04/88 | 2 | $195.00 | Y | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Materials Chemistry for the Non-chemist | One day Seminar on basic hazardous materials chemistry including hazard classifications, behavioral characteristics, terminology, safety considerations, and right-to-know information. | University of Toledo, Division of Continuing Education | -0- | N | 09/15/87 | 4 | $295.00 | Y | 2 | N |
| Hazardous Materials Chemistry for the Non-Chemist | One day seminar on basic hazardous material chemistry including classifications, behavioral characteristics, terminology and Right-To-Know information. | Sumter Area Technical College, South Carolina Environmental Training Center | -0- | N | 09/22/87 | 1 | $195.00 | N | 2 | Y |
| Hazardous Materials Contingency Planning | -0- | U.S. EPA, OSWER | -0- | N | 06/19/89 | 2 | -0- | -0 | -0- | -0- |
| Hazardous Materials Exposure - Emergency Care for the Patient | Help first responders with identifying and caring for people exposed to hazardous waste. Includes identification and treatment | The Safety Specialists, Inc. | | N | 03/03/89 | 1 | $65.00 | N | 2 | N |
| Hazardous Materials for for Healthcare Facilities | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 03/30/89 | 1 | $95.00 | -0 | 2 | ? |
| Hazardous Materials Incident Response | Basic instruction to meet mandated training requirements for all government employees who respond to hazardous material incidents. | University of Florida, Continuing Education Center, TREEO Center | Florida Department of Community Affairs | N | 01/27/89 | 5 | $5.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Ha rdous Ma erials Incident Response Operations | -0- | U.S. EPA, OSWER | -0- | N | 04/10/89 | 16 | -0- | -0 | -0- | -0- |
| Hazardous Materials Management Certification Program | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | University of Cincinnati Educational Resource Center & U.S. Department of Health and Human Services | N | 02/07/89 | 2 | $275.00 | ? | 2 | ? |
| Hazardous Materials Manager Program | Hazardous Material Management | Indiana University, School of Public & Environmental Affairs | -0- | N | 04/20/88 | -0- | $330.00 | Y | 2 | Y |
| Hazardous Materials Response for First Responders | -0- | U.S. EPA, OSWER | -0- | N | 04/03/89 | 18 | -0- | -0 | -0- | -0- |
| Hazardous Materials Training and Technical Assistance | A selection of 17 mini-courses dealing with different areas of occupational safety/waste management. Each course is scheduled and billed seperatly. | Michigan State University, Community Development Programs - Lifelong Education Programs | Michigan Department of Labor - Safety Education and Training Program | N | -0- | -0- | $15.00 | -0 | -0- | Y |
| Hazardous Materials Treatment Technologies | -0- | U.S. EPA, OSWER | -0- | N | 04/04/89 | 5 | -0- | -0 | -0- | -0- |
| Hazardous Materials, Chemicals, Substances & Waste Training & Compliance | Mandatory training requirements under EPA, DOT and OSHA using the updated Transportation Skills Programs Audio-Visual Taraining Programs (27 Programs) | Hazardous Materials Publishing Co., | -0- | N | -0- | -0- | -0- | -0 | N/A | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Materials, Industrial Health and Safety | Short courses in plant spill response, off site spill response, emergency response, management of hazardous materials, health and safety training and professional protection. | Findlay College, Office of Hazardous Waste Studies | -0- | Y | -0- | -0- | 0- | -0 | 2 | Y |
| Hazardous Materials/ Dangerous Goods Transportation Seminars | Provides the initial hazardous waste transportation training required by federal law. | National Safety Council, | -0- | N | 08/02/89 | 18 | -0- | N | 2 | N |
| Hazardous Materials/ Waste manager Training Course | Environmental Rules and Regulations (RCRA, TSCA, CERCLA, OSHA and others) | University of Alabama, College of Continuing Studies | The Alabama Association of Water Pollution Control | N | 10/25/88 | -0- | $315.00 | Y | 2 | Y |
| Hazardous Materials: Handling and Disposal | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | N | 09/11/89 | 2 | $800.00 | ? | 2 | Y |
| Hazardous Substance Transportation Workshop | Not Documented | University of Wisconsin, Engineering Professoinal Development | -0- | N | 03/29/89 | 1 | $450.00 | -0 | 2 | ? |
| Hazardous Substances Insurance Conference | Provides a detailed examination of the latest developments effecting insurers and insureds. | Executive Enterprises, Inc., | -0- | N | 09/20/89 | 1 | $895.00 | Y | 2 | -0- |
| Hazardous Substances Training | Hazardous waste worker training, superfund basic research programs | NIOSH Educational Resource Centers, | -0- | N | 10/05/88 | -0- | -0- | -0 | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste Business '89 | A selection of short courses revolving around starting or enhanceing a hazardous waste management business. | Hazardous Materials Intelligence Report, | | N | 03/02/89 | 1 | $695.00 | Y | -0- | N |
| Hazardous Waste General Site Worker Training | Satisfies the 40 hour OSHA requirements for general hazardous waste site worrkers. | Tufts University, The Center for Environmental Management | -0- | N | 09/18/89 | 3 | 1,050.00 | Y | N | N |
| Hazardous Waste Incident Response | Not documented - Fees to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Washington Educational Resource Center & U.S. Department of Health and Human Services | N | 04/01/89 | 1 | -0- | ? | 2 | ? |
| Hazardous Waste Incinerator Inspection Training | -0- | U.S. EPA, OSWER, | -0- | -0- | 05/09/89 | 6 | -0- | -0 | -0- | -0- |
| Hazardous Waste Management | Hazardous waste management under RCRA | Environmental Resource Center, | -0- | N | 10/17/88 | -0- | $295.00 | Y | 2 | Y |
| Hazardous Waste Management | Regulations and technology for personnel with responsibility for regulatory compliance programs, especially RCRA permitting strategy | Center for Professional Advancement, | | N | 05/05/86 | 1 | $995.00 | N | 2 | Y |
| Hazardous Waste Management - New Markets, Technologies, and Services | Shows how to capitalize on new market trends and opportunities in the hazardous waste industry. | Frost and Sullivan, Inc., | Total Environmental Assessment and Management, Inc. | N | 05/23/89 | 1 | $795.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste Management and Waste Water Treatment | Provides interaction between instructors and attendees and discussion of particular, individual problems currently being experienced or anticipated. | Vanderbilt University, Dept. of Civil and Environmental Engineering | -0- | N | 12/09/86 | 1 | $525.00 | N | 2 | N |
| Hazardous Waste Management and Wastewater Treatment | In situ treatment of contaminated soil and rock, operation control and management of activated sludge plants, process design:Part I-Bilogical treatment and wastewater engineering. | Technomic Publishing Company, Inc., | Vanderbilt University | N | 12/01/88 | -0- | -0 | -0 | 2 | Y |
| Hazardous Waste Management Course | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Texas Educational Resource Center & U.S. Department of Health and Human Services | N | 06/01/89 | 10 | $475.00 | ? | 2 | ? |
| Hazardous Waste Management Course | Provides the basic working knowledge of the rules and regulations covered by RCRA | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/15/89 | 24 | $475.00 | N | 2 | Y |
| Hazardous Waste Management for Small Quantity Generators | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | N | 09/08/89 | 1 | $180.00 | ? | 2 | Y |
| Hazardous Waste Management Refresher Course | Provides a review of the basic working knowledge of the rules and regulations covered by RCRA | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/18/89 | 8 | $200.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste Management Under RCRA | Systematic approach to understanding and compling with today's RCRA regulation | Environmental , Resource Center, | -0- | N | 01/03/88 | -0- | $295.00 | Y | 2 | Y |
| Hazardous Waste Management Update Course | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Texas Educational Resource Center & U.S. Department of Health and Human Services | N | 01/01/89 | 10 | $200.00 | ? | 2 | ? |
| Hazardous Waste Management, the Superfund Program | Not Documented | Duke University, Forestry & Environmental Studies | -0- | N | 04/03/89 | 1 | $500.00 | -0 | 2 | ? |
| Hazardous Waste Measurements | Field and lab technologies used for the measurments of hazardous wastes | University of Michigan, School of Public Health, Department of Environmental and Industrial Health | -0- | N | 08/21/86 | -0- | $175.00 | N | 2 | Y |
| Hazardous Waste Minimization | Planning and developing a hazardous waste minimization program for compliance with federal RCRA and Michigan requirements. | Eastern Michigan University, Corporate Services | -0- | N | 11/02/89 | 4 | $150.00 | -0 | -0- | Y |
| Hazardous Waste Minimization Process Seminar | Explains waste minimization processes for different industries. Also discusses several treatment technologies | University of Louisville, Center for Continuing Education | Kentucky Natural Resourses and Environmental Protection Cabinet | N | 05/19/88 | 1 | $35.00 | Y | Y | N |
| Hazardous Waste Operations and Emergency Response | Course complies with 29 CFR 1910.120 training requirements for on-site emergency response. | General Physics Corporation, | -0- | N | 07/10/89 | 4 | $950.00 | N | ? | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste Operations and Emergency Response | Course satisfies the 40 hour federal requirement (29 CFR 1910.120) for general site workers with hazardous waste operations. | Tufts University, Center for Environmental Management | -0- | N | 04/24/89 | 5 | 1,050.00 | Y | -0- | ? |
| Hazardous Waste Regulation Course | Covers disposal topics including land ban implementation, waste minimization, recycling, UST's and RCRA | Executive Enterprises, Inc., | -0- | N | 10/02/89 | 3 | $895.00 | Y | 2 | -0- |
| Hazardous Waste Research | Provides information on new developments and on-going research in hazardous waste related areas. | Kansas State University, Engineering Extension | -0- | N | 05/23/89 | 1 | $40.00 | Y | 2 | Y |
| Hazardous Waste Seminar for Small to Medium Sized Generators | A program designed for small generators that presents an explianation of the law, the generator's responsibilities, and how to prepare waste for disposal. | Metropolitan Center for High Technology, | -0- | N | 02/21/89 | 1 | $45.00 | N | -0- | -0- |
| Hazardous Waste Site Operations | A 40 hour training course designed to meet the requirements outlined in OSHA 29 CFR 1910 Hazardous Waste Operations and Emergency Response. | DeLisle Associates LTD, | On-Site Instruments | N | 03/27/89 | 1 | $600.00 | N | -0- | Y |
| Hazardous Waste Site Safety | Not Documented | University of Florida, | -0- | N | 03/20/89 | 1 | $875.00 | -0 | 2 | ? |
| Hazardous Waste Site Supervision | Not Documented | University of Florida, | -0- | N | 03/25/89 | 1 | $225.00 | -0 | 2 | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste Tank Inspector Training | Date to be announced | U.S. EPA, OSWER | -0- | N | -0- | 1 | -0- | -0 | -0- | -0- |
| Hazardous Waste Tank Systems Training | Date to be announced | U.S. EPA, OSWER | -0- | N | -0- | 1 | -0- | -0 | -0- | -0- |
| Hazardous Waste Treatment: Biosystems for Pollution Control | Use of Biosystems for the cleanup of contaminated soils, sludges, groundwaters, and leachates at remedial action sites. Environmental factors that influence microbe use are discussed. | U.S. EPA Risk Reduction Engineering Laboratory, | The Air and Waste Management Association | N | 02/20/89 | 1 | $335.00 | N | 2 | Y |
| Hazardous Waste Worker Training | Training for managers and supervisors of hazardous materials operations | South Michigan Coalition on Occupational Safety and Health, | -0- | N | -0- | -0- | -0- | -0 | 2 | Y |
| Hazardous Waste Worker Training | Several courses at different universities are offered at varying times. Course fees are to be announced. | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Midwest Center for Occupational Health and Safety & U.S. Department of Health and Human Services | N | -0- | -0- | -0- | ? | 2 | Y |
| Hazardous Waste, Minimizing Your Liability | Provides information on the legal and technical concerns when evaluating contractors and disposal alturnatives to assist in minimizing disposal costs and liabilities. | Randolph, Breyer, & Associates, Inc., | Cross/Tessitor e & Associates | N | 06/29/89 | 1 | $585.00 | Y | 2 | ?? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste: Site Safety | Provides specific guidance for compliance with RCRA, CERCLA, and OSHA regulations that impact design and implementation of site operating, safety, and contingency plans and training. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 03/20/89 | 2 | $875.00 | Y | 2 | -0- |
| Hazardous Waste: Site Supervision | Eight hours of specialized training in the management of hazardous waste operations and long term spill cleanups. Meets OSHA requirements for (29 CFR 1910.120). | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 03/25/89 | 2 | $225.00 | Y | 2 | -0- |
| Hazardous Waste: The Consumer Connection | A household hazardous waste program to educate the Michigan public about the need for special, environmentally sound management of these wastes. | Michigan State University, Cooperative Extension Service | Eastern Michigan University, & Home Chemical Awareness Coalition | N | 04/06/89 | 2 | $50.00 | N | -0- | N |
| Hazardous Wastes, Superfund, and Toxic Substances | Up-to-date information on legal and scientific issues involving toxic chemicals and hazardous wastes | American Law Institute - American Bar Association, Committee on Continuing Professional Education | -0- | N | 10/23/86 | -0- | $375.00 | Y | 2 | Y |
| Hazardous/Toxic Waste Management | Laws, Compliance Procedures and New Technologies | Illinois Institute of Technology, Stuart School of Business Administration | -0- | N | 12/05/88 | -0- | $995.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous/Toxic Waste Management :Laws, Compliance Procedures and New Technology | Defining hazardous wastes. Treatment, storage and disposal technology. Rules for generators. Compliance procedures. Rules for transporters. | Michigan State University, Gradute School of Business Adminstration, Lifelong Education Programs | -0- | N | -0- | 2 | -0- | N | 2 | Y |
| Hazardous/Toxic Waste Management: Laws, Compliance Procedures and New Technologies | Instructs on every critical area of hazardous waste management. Provides a tested approach to economical and efficient hazardous waste handling and disposal. | Baldwin-Wallace College, Department of Seminars and Training | Syska and Hennessy | N | 10/23/89 | 1 | $745.00 | -0 | 2 | N |
| Hazardous/Toxic Waste Management: Mandates, Strategies, and Options | Waste minimization, land disposal restrictions, the new TCLP (Toxicity Characteristic Leaching Procedure), release prevention and reporting, and medical waste tracking and monitoring. | LION Technology Inc., | -0- | Y | 10/16/89 | 10 | $495.00 | -0 | 2 | Y |
| Hazardous/Toxic Waste Management: Annual National Registry Certification Workshop | Provides nationally recognized annual training. Discusses waste reduction, minimization, and management; land disposal restrictions and recycling rules. | Lion Technology, Inc., | -0- | Y | 11/01/89 | 10 | $495.00 | N | 2 | Y |
| HAZCAT Chemical Identification | Provides pratical, hands-on experience identifying commonly encountered materials. | University of California - Davis, University Extension | -0- | N | 09/07/89 | 1 | $165.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| HazMat Central, Hazardous Materials Management Conference | 11 seperate workshops on range of topics including emergency response, infectious materials handeling, in-plant industrial spill response, soil remediation, risk assessment, and environmental law. | HazMat World, | -0- | N | 03/14/89 | 1 | $300.00 | N | 2 | Y |
| HAZMAT Program | Training to handle, store, recycle, transport, collect, test, and dispose of hazardous materials in the most efficient, cost-effective manner. | Front Range Community College, | -0- | Y | 08/15/88 | -0- | -0- | N | 1 | N |
| HAZOP- Hazard and Operability Analysis | Prepares operators, engineers, and managers to use the HAZOP technique-a systematic, imaginative search for operational difficulties and process hazards-and to lead effective HAZOP analysis. | JBF Associates, Inc., | -0- | -0- | -0- | -0- | -0- | -0 | -0- | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| HAZTECH International | Hazardous material management | Colorado Ground Water Association, | American Institute of Professional Geologists - Colorado Section, Hazardous Waste Management Society, American Socity of Civil Engineers - Colorado Section and Colorado Training Institute. | N | 08/11/86 | -0- | -0- | Y | 2 | Y |
| Hazwoper and RCRA Workshops: Responding To Chemical Spills | Proper response techniques, use of spill control equipment, and selection and use of protective equipment. | Pathfinder Associates Inc., | -0- | N | 10/02/89 | 8 | $125.00 | -0 | -0- | Y |
| Health and Safety Considerations at Leaking Underground Storage Tanks | Provides information on health and safety procedures, worker and community risk, regulation, and safety equipment. | University of California - Davis, University Extension | -0- | N | 05/12/89 | 1 | $65.00 | Y | 2 | Y |
| Health and Safety for Hazardous Waste Site Investigation Personnel | OSHA required 40 hour off site training for employees involved in hazardous waste operations under CERCLA or RCRA | New Jersey/New York Hazardous Materials Worker Training Center, | University of Medicine and Dentistry of New Jersey - Robert Wood Johnson Medical School | N | 06/12/89 | 15 | $700.00 | N | -0- | ? |
| Health and Safety for Hazardous Waste Site Investigation Personnel | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | N | 08/14/89 | 13 | $700.00 | ? | 2 | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Health and Safety in EPA Field Activities | Available upon request | U.S. EPA, OSWER | -0- | N | -0- | -0- | -0- | -0 | -0- | -0- |
| Health and Safety Refresher Course for Hazardous Waste Workers | Designed to update knowledge on health and safety issues for persnnel who have taken the 40 hour health and safety program. The program meets the OSHA requirement for refresher training. | University of California, University Extension | -0- | N | 06/28/89 | 1 | $150.00 | Y | -0- | Y |
| Health and Safety Training for Hazardous Waste Activities | Provides the required 40 hour OSHA 29 CFR1910.120(e) training. | Geraghty & Miller, Inc., | -0- | ? | 04/10/89 | 5 | $950.00 | N | -0- | ? |
| Health and Safety Training for Hazardous Waste Operations - 24 Hour Workshop for Emergency Response Teams and TSD Workers | Provides the knowledge and skills needed to perform HW related jobs with minimal health risk. Also provides workshops on drum handling and spill response. | University of Wisconsin - Madison, Department of Engineering Professional Development | -0- | N | 04/10/89 | 4 | $625.00 | Y | -0- | Y |
| Health and Safety Training for Hazardous Waste Operations - 40 Hour Workshop for Superfund and RCRA Site Remediation Personnel | Offers a comprehensive approach to safety and risk management. Addresses issues like hazard recognition, personal protective equipment, monitoring equipment, and contingency planning. | University of Wisconsin - Madison, Department of Engineering Professional Development | -0- | N | 04/24/89 | 3 | $850.00 | Y | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Health and Safety Training for Hazardous Waste Operations - 8 Hour Workshop for Managers | Addresses the requirements for training, medical surveillance and industrial hygiene monitoring programs associated with HW clean-up. | University of Wisconsin - Madison, Department of Engineering Professional Development | -0- | N | 04/28/89 | 5 | $300.00 | Y | -0- | Y |
| Health and Safety Training for Hazardous Waste Workers | Designed to satisfy the OSHA regulations covering personnel involved in investigation and remediation of HW sites. | University of California, University Extension | -0- | N | 06/19/89 | 1 | $750.00 | Y | -0- | Y |
| Health and Safety Training for Supervisors of Hazardous Waste Workers | Designed for individuals who have supervisory responsibilities at HW sites. | University of California, University Extension | -0- | N | 06/29/89 | 1 | $150.00 | Y | -0- | Y |
| How to Comply with Employee Right-To-Know, Safety and Health, and SARA Title III Regulatory Requitements | A one day course presenting regulatory requirements and procedures for compliance. | South Carolina Environmental Training Center, | Environmental Resourse Center | N | 08/27/87 | 4 | $150.00 | N | 2 | Y |
| How to Comply with Florida's Hazardous Waste Regulations for Generators | Identification of wastes and guidelines on how to meet government regulations for hazardous waste. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 01/19/89 | 4 | $75.00 | Y | 2 | -0- |
| How to Comply with State & Federal Environmental Regulations | Provides state-by-state environmental regulatory compliance information. | Business and Legal Reports, Inc., | -0- | N | 05/15/89 | 3 | $475.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| How to Handle Environmental Compliance | Information to write an effective environmental management plan, including details about environmental regulations, their purpose and affects. | University of Kansas, Continuing Education | -0- | N | 10/09/89 | 4 | $595.00 | Y | 2 | Y |
| How to Manage an Environmental Project | Outlines the steps involved in managing HW projects for companies with HW problems. | University of California - Davis, University Extension | -0- | N | 05/01/89 | 1 | $110.00 | Y | 2 | Y |
| How to Manage Medical and Infectious Waste - Practical Considerations | Provides information on state, regional, and federal requirements relative to the management of medical and infectious waste | HMCRI, | -0- | N | 08/10/89 | 6 | $295.00 | Y | 2 | Y |
| How to Prepare and Implement a Risk Management and Prevention Plan | Provides information on how to develop and implement a RMPP. A generic RMPP is developed in the class as an example. | University of California - Davis, University Extension | -0- | N | 04/10/89 | 1 | $125.00 | Y | 2 | Y |
| Human Reliability Analysis | Qualitative and quantitative methods for assessing the effects of human performance on the reliability of complex systems. | JBF Associates, Inc., | -0- | -0- | -0- | -0- | -0- | -0 | -0- | -0- |
| Implementing a Quality Hazard Communication Program: A Step-By-Step Approach | ? | University of Utah, Rocky Mountian Center for Occupational & Environmental Health | -0- | N | 06/27/89 | 1 | $150.00 | ? | 2 | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| In-Plant Chemical Spill Response | Covers the fundamentals of in-plant industrial spill response, including forklift operations, recieving docks, storage, transfer and process operations, and laboratories. | University of Toledo, Continuing Education | -0- | N | 02/23/89 | 9 | $295.00 | Y | 2 | Y |
| Incident Analysis of Hazardous Materials: The Systematic Analysis of a Hazardous Material Site Emergency | Hazardous materials incident analysis introduces a systematic method of analyzing and assessing the potential effect of hazardous materials involvement in fires and other emergencies | Eastern Michigan University, Corporate Services | -0- | N | 11/10/89 | 4 | $125.00 | -0 | -0- | Y |
| Incineration of Hazardous and Non-Hazardous Waste | Persents incineration theories and techniques, as well as permitting and equipment requirements, energy recovery, and pollution abatement. | Center for Professional Advancement, | -0- | N | 06/05/89 | 1 | 1,210.00 | N | 2 | Y |
| Incineration of Industrial Waste | Provides an annual forum for experts from the field to present information about the latest technical delevoments related to the incineration of industrial waste. | Toxcon Engineering Company, Inc., | | N | 03/01/89 | 1 | $625.00 | Y | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Incineration of Medical Wastes | Examines regulatory, technical, economical, and environmenta; considerations of on-site incineration. | Randolph, Breyer and Associates, | Association for the Safe Handling of Biomedical Wastes | N | 10/10/89 | 5 | $495.00 | Y | -0- | Y |
| Incinerator Retrofit for Hospitals and Industry | Focuses on retrofitting incinerators but will also help with the decision of whether to retrofit, buy a new unit or send wastes off site for disposal. | Randolph, Breyer & Associates, Inc., | Cross / Tessitore & Associates | N | 04/17/89 | 1 | $675.00 | Y | 2 | Y |
| Industrial Emission and Air Quality Monitoring | Course, with workshops and field trips, in pollution control and abatement of gaseous and particulate emmissions. | Center for Professional Advancement, | -0- | N | 07/05/89 | 1 | 1,225.00 | N | 2 | Y |
| Industrial Hazardous Waste Incineration | Review of factors effecting the design of hazardous liquid, solid, and sludge incinerators to meet current environmental standards. | AIChE, Continuing Education | -0- | N | 04/05/89 | 5 | $595.00 | Y | 2 | -0- |
| Industrial Hygiene | Principles of industrial hygiene that will enable the engineer to develop an understnading of exposure control design and operation required for the protection of workers. | AICHE, Continuing Education | -0- | N | 03/21/90 | 2 | $650.00 | Y | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Industrial Hygiene Practice | Will emphasize practical skills and methods needed for recognition, evaluation, and control of occupational health hazards. | Center for Professional Advancement, | -0- | N | 11/12/89 | 1 | 1,170.00 | N | 2 | Y |
| Industrial Toxicology | Significant concepts relating to industrial toxicology are presented to provide an understanding of the biological interactions and chemical toxicants. | AICHE, Continuing Education | -0- | N | 03/19/90 | 2 | $650.00 | Y | -0- | Y |
| Industrial Ventilation: Design for Contaminant Control | Ventilation system design and testing, supplemented with an introduction to a computer routine for rapidly completing design calculations. | AICHE, Continuing Education | -0- | N | 11/16/90 | 1 | $650.00 | Y | -0- | Y |
| Industrial Waste Disposal: 1989 Concerns and Remedies | Discusses on-site waste handling, recycling, and waste facility siting | Federation of Environmental Technologists, | Illinoise Land of Lincoln Governmental Refuse Collection & Disposal Association | N | 04/19/89 | 1 | $75.00 | N | -0- | N |
| Industrial Waste Generators' Seminar, Gen Sem '89, Seventh Annual | The seminar includes a number of notable speakers discussing a wide range of hazardous waste topics directed towards industrial waste generators.Also exhibits displaying all kinds of equipment. | LICA (Liquid and Solid Industrial Control Association), | -0- | N | 09/13/89 | 1 | $230.00 | -0 | -0- | N |

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|---|---|---|---|---|---|---|---|---|---|---|
| Industrial Waste Reduction and Resourse Conservation | Course helps to prepare plans for waste and toxicity reduction in compliance with RCRA, perform environmental audits, and minimize liabilities. | George Washington University, Continuing Engineering Education Program | -0- | N | 10/03/88 | 1 | $815.00 | N | 2 | Y |
| Industrial Waste Treatment Plant Operators Training Course: Preparation for Licensing | Legal aspects of pollution control, basic wastewater treatment mathematics and calculations, clarification-solids and oil removal, heavy metals/oil removal, and review for state licensing exam. | Engineering Society of Detroit, Society for Environmental Science | -0- | N | 09/12/89 | 2 | $300.00 | Y | -0- | Y |
| Industrial Wastewater Pretreatment | Provides pratical information about the U.S. EPA Industrial Wastewater Pretreatment Program and how to meet compliance. | University of Toledo, Division of Continuing Education | -0- | N | 03/27/89 | 5 | $295.00 | Y | 2 | -0- |
| Inland Oil Spill Control | Provides information on how to handle a spill within the capabilities of availble equipment and manpower. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/08/89 | 7 | $895.00 | N | 2 | -0- |
| Inland Oil Spills | Not Documented | University of Findlay, The Emergency Response Training Center | -0- | N | 06/26/89 | 2 | $650.00 | N | 2 | N |
| Inside Superfund: Enforcement, Settlement, Claims Management | An extensive look at enforcement, settlement, and claims management for superfund. | Inside EPA Weekly Report, | Risk Management Technologies, Inc. | N | 09/21/89 | 1 | $595.00 | -0 | -0- | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Inspecting Buildings for Asbestos Containing Materials | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 04/08/89 | 8 | $375.00 | -0 | 2 | ? |
| Inspectors Annual Review | A half-day course required to maintain certification as asbestos inspectors. | Tufts University, The Center for Environmental Management | -0- | N | 09/08/89 | 3 | $75.00 | Y | N | N |
| Institute in Risk Management in Environmental Health and Protection | -0- | New York University, Graduate School of Public Administration | -0- | N | 05/30/89 | 1 | $795.00 | ? | 2 | ? |
| Insurance Claims for Environmental Damages: Legal and Technical Considerations | Covers environmental claims from the legal, technical and insurance perspectives. | Executive Enterprises, Inc., | -0- | N | 09/27/89 | 2 | $895.00 | Y | 2 | -0- |
| Introduction to Environmental Engineering | Current and pending regulations that affect the design of disposal systems for liquid and solid wastes. Also current treatment systems, and air, water, and land quality management. | George Washington University, Continuing Engineering Education Program | -0- | N | 10/30/89 | 1 | $725.00 | Y | 2 | Y |
| Introduction to Environmental Engineering | To provide an overview of environmental engineering, including air pollution, wastewater and hazardous waste. | George Washington University, Continuing Education Program, School of Engineering and Applied Science | -0- | N | 10/30/89 | 1 | $725.00 | N | 2 | Y |
| Introduction to General Chemistry for Hazardous Materials Management | Designed for people with no prior exposure to chemistry. A basic introduction to the subject. | University of California - Davis, University Extension | -0- | N | 06/27/89 | 1 | $75.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Introduction to Ground Water Investigation | -0- | U.S. EPA, OSWER | -0- | N | 04/03/89 | 6 | -0- | -0 | -0- | -0- |
| Introduction to Groundwater Modeling: Using Microcomputers to Solve Groundwater Problems | Introduces the use of computer models to solve groundwater problems. | University of Florida, Continuing Education Center, TREEO Center | Departments of Environmental Engineering Services, Geology, and Civil Engineering | N | 08/01/89 | 1 | $595.00 | Y | 2 | -0- |
| Introduction to Groundwater: Contamination, Investigation, and Remediation Assessment | Introductory training in the movement of contaminants throughout groundwater systems. Basic concepts in hydrogeology, aquifer behavior, principles of chemical contaminant transport, and more. | University of Florida, Continuing Education Center, TREEO Center | Departments of Environmental Engineering Sciences, Geology, and Civil Engineering, University of Florida | N | 03/08/89 | 1 | $450.00 | Y | 2 | -0- |
| Introduction to Hazardous Waste Management: OSHA and RCRA Requirements | Introductory course presenting the reasons for hazardous waste regulations, content of current regulations, responsibilities of organizations that generate or handle such wastes, and more. | University of Missouri-Columbia, Departments of Civil and Chemical Engineering | College of Engineering, Engineering Extension, and Department of Environmental Health and Safety | N | 11/09/89 | 5 | $350.00 | Y | 2 | -0- |
| Introduction to Organic Chemistry for Hazardous Materials Management | Bacis introduction to organic chemistry. Examples from the HW field will be included. | University of California - Davis, University Extension | -0- | N | 08/24/89 | 1 | $75.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Introduction to Risk Assessment and Risk Management | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | John Hopkins Educational Resource Center & U.S. Department of Health and Human Services | N | 06/05/89 | 2 | $800.00 | ? | 2 | ? |
| Laboratory Quality Assurance and Assessment for Environmental Testing | Explains how to identify shortcommings in an existing testing program and upgrade or build a program using state-of-the-art quality control techniques | American Association for Laboratory Accreditation, | Center for Energy and Environmental Management | N | 10/03/88 | 3 | $595.00 | N | 2 | Y |
| Land Ban Update | The focus will be on the tightened federal restrictions on the disposal of hazardous waste in land fills. | Engineering Society of Detroit, The Society for Environmental Science | -0- | N | 11/15/89 | 1 | $20.00 | Y | -0- | -0- |
| Land Disposal Restrictions Enforcement Training | -0- | U.S. EPA, OSWER | -0- | N | 04/09/89 | 9 | -0- | -0 | -0- | -0- |
| Land Treatment Technology for Indistrial Wastes, Wastewaters, and sludges | Presents the latest information, techniques, and regulatory constrants regarding this approach to managing industrial wastewater and sludges. | AIChE, Continuing Education | -0- | N | 04/03/89 | 3 | $595.00 | Y | 2 | -0- |
| Lead Based Paint Abatement for Workers, Supervisors and Contractors | A Massachusetts state accredited lead-based paint abatement course. Topics include medical serveillance, protective equipment and regulations. | Tufts University, The Center for Environmental Management | -0- | Y | 11/06/89 | 3 | $500.00 | Y | N | N |

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|---|---|---|---|---|---|---|---|---|---|---|
| Leaking Underground Storage Tank Corrective Action Alternatives | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 04/01/89 | 2 | $250.00 | -0 | 2 | ? |
| Leaking Underground Storage Tank Workshop | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 04/11/89 | 1 | $495.00 | -0 | 2 | ? |
| Legal Perils of Hazardous Waste and Environmental Management | Presents methods to ensure compliance with federal regulation and minimize the cost of complying with the law. | University Seminar Center, | -0- | N | 04/25/89 | 6 | $795.00 | N | -0- | Y |
| Liability, Hazardous Waste and Real Estate | Provides a review of legislation on the liabilities associated with the sale and ownership of contaminated real estate, and outline the responsibilities of past and present owners. | University of California - Davis, University Extension | -0- | N | 03/08/89 | 1 | $165.00 | Y | 2 | Y |
| Living With Chemicals in the Workplace | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Harvard Educational Resource Center & U.S. Department of Health and Human Services | N | 06/06/89 | 1 | -0- | ? | 2 | ? |
| Living With TSCA | Offers a comprehensive overview of the many facets of TSCA. | Chemical Manufacturers Association, | -0- | N | 04/04/89 | 1 | $205.00 | N | 2 | Y |
| Making Sense of Environmental Regulations | Contains an overview of all the major environmental laws | University of Kansas, Division of Continuing Education | -0- | N | 07/24/89 | 2 | $595.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Management of Hazardous Chemical Wastes | understanding the complex regulations that are in force today, as well as those coming into effect. | J.T. Baker Chemical Company., Office of Training Services | -0- | N | -0- | -0- | $395.00 | N | 2 | Y |
| Management Briefing on Asbestos in Buildings | Designed to provide building owners with the basic information necessary to understand the asbestos crisis and begin making decisions about the management of asbestos in their buildings. | University of California - Berkeley, University Extension | -0- | N | 10/03/89 | 1 | $125.00 | Y | 2 | -0- |
| Management of Hazardous Waste | Comprehensive review of techniques and technologies for managing hazardous wastes | University of Texas at Austin, Department of Civil Engineering | -0- | N | 11/14/88 | -0- | $875.00 | N | 2 | Y |
| Management of Hazardous Wastes | Management of Hazardous Wastes, Up to date changes and Regulations. | Colorado State University, Colorado Depatment of Health | The Department of Transportation , The Environmental Protection Agency | N | 12/13/85 | -0- | $85.00 | N | 2 | Y |
| Management Planners Annual Review | A one day course required to maintain certification as asbestos management planners. | Tufts University, The Center for Environmental Management | -0- | N | 09/08/89 | 3 | $150.00 | Y | N | N |
| Management Seminar for Water and Wastewater Operators | Emphasizes management education and skill development and is designes for the 'B' operator or 'A' certified operator interested in becoming a manager, supervisor, or leader. | University of Florida, Continuing Education Center, TREEO Center | FW & PCOA | N | 03/20/89 | 1 | $225.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Managing Asbestos in Buildings | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 05/11/89 | 8 | $275.00 | -0 | 2 | ? |
| Managing Environmental Compliance at Federal Facilities | Topics include: responding to spills, product storage and transportation, land use regulation, management strategies and funding issues. | Executive Enterprises, Inc., | -0- | N | 11/14/89 | 3 | $990.00 | Y | 2 | Y |
| Managing EPA/ OSHA Issues | Designed to provide a working knowledge of regulations and to provide a framwork for implementing an effective program to manage key issues | American Trucking Associations, | -0- | N | 06/07/89 | 1 | $275.00 | N | 2 | Y |
| Managing Hazardous Chemicals: Intergrating Hazard Communication, Chemical Safety, Hazardous Waste Management, and Emergengy Response | Provides information on the development of management strategies related to the implication of an efficient, comprehensive chemical safety program. | University of North Carolina, Occupational Safety and Health Summer Institute | -0- | N | 08/02/89 | 1 | $390.00 | N | 2 | Y |
| Managing Risk Communications | Designed to help site managers design, plan and implement communications with the many community segments. | DuPont Company, | -0- | N | 06/14/89 | 7 | $925.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Managing the Impact of Environmental Laws on Real Estate Transactions | Information on protecting yourself from the major liabilities affecting coporate real estate purchases, sales, mergers, and aquisitions. | Government Institutes, Inc., | -0- | N | 08/16/89 | 1 | $895.00 | Y | 2 | Y |
| Managing the Superfund Process, from Notice through Settlement | Strate ies, tactics and techniques for handling a Superfund case,from its inception to its resolution. | Executive Enterprises, Inc., | -0- | N | 10/13/89 | 1 | $690.00 | Y | 2 | Y |
| Managing Underground Storage Tanks | Slide presentation on the facts and the visuals you need to make meaningful UST presentation | U.S. Environmental Protection Agency, National AudioVisual Center | -0- | N | -0- | -0- | $125.00 | Y | -0- | Y |
| Managing Your Infectious & Hazardous Wastes | Not Documented | University of Wisconsin, Engineering Professoinal Development | -0- | N | 03/28/89 | 1 | $575.00 | -0 | 2 | ? |
| Medical Waste Management for Physicians | Occupational safety and infectious waste handling for small quantity generators and institutions. | Randolph, Breyer and Associates, | Association for the Safe Handling of Biomedical Wastes | N | 11/15/89 | 1 | $465.00 | Y | -0- | Y |
| Methods for the Calculation of Fire and Explosion Hazards | A problem solving suplement to the AIChE course "Fundementals of Fire and Explosion Hazard Evaluation". | AIChE, Continuing Education | -0- | N | 04/01/89 | 5 | $595.00 | Y | 2 | -0- |
| Michigan Hazardous Waste Industry Occupational Safety and Health Training Program | Managers Workshop (Hazard communication "Right-to-Know", Hazardous waste management for small quantity generators) | Michigan State University, Community Development Programs | Michigan Dept. of Labor, Safety and Education and Traininig Program | Y | -0- | -0- | -0- | -0 | 1 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Michigan Occupation Safety and Health Act | Superfund Amendments and Reauthorization Act (SARA) | Michigan State University, School of Labor and Industrial Relations | -0- | N | 12/01/88 | -0- | $135.00 | N | 2 | Y |
| Minimizing Liability for Hazardous Waste Management | Minimizing liability and transaction costs in cleanup, Minimizing Treatment/disposal and cleanup costs | American Law Institute - American Bar Association, Committee on Continuing Professional Education | -0- | N | 04/02/87 | -0- | $365.00 | Y | 2 | Y |
| Monitoring and Control of Toxics and Criteria Pollutants | Hospital waste problems and control | UMDNJ-Robert Wood Johnson, Medical School | -0- | N | 10/18/88 | -0- | $175.00 | Y | 2 | Y |
| Monitoring and Control of Toxics and Criteria Pollutants | Monitoring and control of asbestos | Asbestos Control Service, New Jersey Department of Health | -0- | N | 10/18/88 | -0- | $175.00 | Y | 2 | Y |
| Monitoring of Air Toxics | -0- | U.S. EPA, Atmospheric Research Exposure Assessment Laboratory | Air and Waste Management Association | N | 05/01/89 | 1 | $390.00 | N | 2 | Y |
| New UST Requirements and How They May Effect You | Covers installing and abandonment/removal of UST's as well as remediation of leaking UST's. | Federation of Environmental Technologists, | -0- | N | 09/15/89 | 1 | $50.00 | N | -0- | N |
| Occupational Epidemiology | Provides an overview of the Epidemiological methods used in the study of occupation related diseases and injury | Southwest Center for Occupational Health and Safety, | | -0- | 01/09/89 | 1 | $250.00 | N | 1&2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Occupational Respiratory Protection | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | N | 09/18/89 | 4 | $800.00 | ? | 2 | ? |
| Occupational Safety and Health Winter Institute - Managing Hazardous Chemicals | Provides understanding of Right-To-Know, OSHA's expanded hazard communication laws and proposed lab safety rules, and computer applications for hazardous chemical management | University of North Carolina, | -0- | N | 03/01/89 | 1 | $390.00 | N | 2 | Y |
| Oil Spill Control | Provides information on how to handle a spill within the capabilities of availble equipment and manpower. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/01/89 | 7 | $895.00 | N | 2 | -0- |
| Oil Spill Dispersant Application Management Training | Prepares participants to act in a leadership capacity during an oil spill. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | -0- | -0- | $600.00 | N | 2 | -0- |
| Oil, Hazardous Materials, Hazardous Wastes | RCRA safety training for hazardous waste handlers | Corpus Christi State University, National Spill Control School | -0- | Y | -0- | -0- | $700.00 | N | 2 | Y |
| On-Site Groundwater and Soil Remediation | Short course focusing on regulations, management decision tools and remediation techniques for the chemical and manufacturing industries. | Groundwater Technology, Inc., | -0- | N | -0- | -0- | $425.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| OSHA 40 Hour Emergency Response | Meets and exceeds OSHA 24-hour training for hazardous materials technicians. | University of Findlay, The Emergency Response Training Center | -0- | N | 06/26/89 | 6 | $875.00 | N | 2 | N |
| OSHA 40 Hour Safety Training | Meets the federal OSHA requirements for safety training. | University of Findlay, The Emergency Response Training Center | -0- | N | 06/19/89 | 7 | $750.00 | N | 2 | N |
| OSHA 8 Hour Refresher Training | Meets the federal OSHA requirements for an annual refresher training. | University of Findlay, The Emergency Response Training Center | -0- | N | 06/22/89 | 7 | $145.00 | N | 2 | N |
| OSHA Compliance Course | Not Documented | Government Institutes, Inc., | -0- | N | 04/04/89 | 1 | -0- | ? | 2 | ? |
| OSHA Hazardous Materials for Hazardous Waste Site Workers | A basic , hands-on course for training OSHA site workers to perform appropriate hazard assessment, risk analysis, and scene management in the control of potentially hazardous materials. | HAZMAT Inc., | -0- | N | 11/14/88 | -0- | $540.00 | Y | 2 | Y |
| OSHA Injury and Illness Recordkeeping | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | N | 06/05/89 | 4 | $125.00 | -0 | 2 | ? |
| OSHA Right-To-Know | OSHA Hazard communication standard: Employee Right-To-Know | Environmental Resource Center, | -0- | N | 10/21/88 | -0- | $295.00 | Y | 2 | Y |
| OSHA Site Supervisor Training | Meets the federal OSHA requirements as they apply to safety training for site supervisors. | University of Findlay, The Emergency Response Training Center | -0- | N | 06/23/89 | 8 | $145.00 | N | 2 | N |

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|---|---|---|---|---|---|---|---|---|---|---|
| Packaging and Transportation of Radioactive Materials - Regulatory Compliance | Invstigates the DOT/NRC/DOE requirements for shipping radoiactive materials | NEWC, | -0- | N | 03/28/89 | 3 | $475.00 | N | 2 | Y |
| Performace and Costs of Alternatives to Land Disposal of Hazardous Waste | Hazardous Waste Incineration | APCA Hazardous Waste Treatment and Disposal Committee (TW-1), | -0- | N | 12/08/86 | -0- | $400.00 | N | 2 | Y |
| Personal Protection and Safety | -0- | U.S. EPA, OSWER | -0- | N | 04/03/89 | 16 | -0- | -0 | -0- | -0- |
| Personal Protection and Safety | Specialized training in personal protection and safety in responding to hazardous materials incidents and chemical spills. | University of Florida, Continuing Education Center, TREEO Center | Florida Department of Community Affairs | N | 01/25/89 | 5 | $5.00 | Y | 2 | -0- |
| Personnel Protection and Safety for Hazardous Waste Workers | Course for Superfund site workers, meets OSHA requirements. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 08/07/89 | 5 | $895.00 | N | 2 | -0- |
| Personnel Protection and Safety for Supervisors | Course for Superfund site supervisors, meets OSHA requirements. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/12/89 | 4 | $200.00 | N | 2 | -0- |
| Personnel Protection and Safety Refresher Course | Course for Superfund site workers, meets OSHA requirements for an annual refresher course. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 06/11/89 | 4 | $200.00 | N | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Physical Assessment Skills for Workplace Emergencies | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Harvard Educational Resource Center & U.S. Department of Health and Human Services | N | 11/01/89 | 1 | -0- | ? | 2 | ? |
| Pollution Insurance Coverage and Environmental Claims Management | The conference will explore critical developments in the pollution insurence marketplace. | Inside EPA Weekly Report, | Risk Management Technologies, Inc. | N | 05/09/89 | 1 | $595.00 | Y | 2 | Y |
| Pollution Liability Insurance and Idemnifica-tio n for Superfund Response Action Contracts | Available upon request | U.S. EPA, OSWER | -0- | N | -0- | -0- | -0- | -0 | -0- | -0- |
| Practical Implementation of a Respirator Program | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 06/06/89 | 1 | $395.00 | -0 | 2 | ? |
| Practice and Procedures in Asbestos Control | A comprehensive discussion of the practices and procedures used in asbestos abatement work. Three days of lecture and 1.5 days of hands-on workshops. | University of California - Berkeley, University Extension | -0- | Y | 09/18/89 | 3 | $850.00 | Y | 2 | Y |
| Prevention and Mitigation Techniques for High Toxic Hazard Releases | "How to" information relating to safe design and operation of high toxic hazard material storage and handeling facilities. | AIChE, Continuing Education | -0- | N | 04/05/89 | 3 | $895.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Prevention, Management, and Compliance for Hazardous Wastes | Detailed case studies are used to demonstrate pratical solutions with an emphasis on hazardous waste minimization techniques. | AIChE, Continuing Education | -0- | N | 04/05/89 | 3 | $595.00 | Y | 2 | -0- |
| Principles of Applied Toxicology | An overview of applied toxicology including regulatory requirements for toxicity testing methods, risk assessment, and the submission of data. | International Center for Health and Environmental Education, | -0- | N | 11/06/89 | 1 | 1,075.00 | -0 | -0- | N |
| Principles of Toxicology | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | John Hopkins Educational Resource Center & U.S. Department of Health and Human Services | N | 06/05/89 | 2 | $800.00 | ? | 2 | ? |
| Procedures and Practices for Asbestos Abatement | An EPA approved course covering the basic steps of an abatement project. | Tufts University, The Center for Environmental Management | -0- | N | 08/14/89 | 3 | $640.00 | Y | N | N |
| Procedures and Practices for Asbestos Abatement - Annual Review | A one day course required for asbestos handlers to maintain state certification | Tufts University, The Center for Environmental Management | -0- | N | 09/07/89 | 3 | $150.00 | Y | N | N |
| Process Reliability and Risk Analysis | Provides an introduction to reliability and risk analysis. It shows how they can be used to plant on-stream time and to make better predictions on environmental hazards. | Center for Professional Advancement, | -0- | N | 07/24/89 | 1 | 1,185.00 | N | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Quality Assurance for RAM Packages | Presents techniques for auditing and training to provide quality assurance for radioactive materials packaging | NEWC, | -0- | N | 08/03/89 | 1 | $475.00 | N | 2 | Y |
| Quality Management In the Testing Laboratory | Provides hands-on training in managing quality control in the laboratory. | American Association for Laboratory Accreditation, | Center for Energy and Environmental Management | N | 06/14/89 | 2 | $895.00 | N | 2 | Y |
| Quantitative Risk Assessment in the Chemical Process and Related Industries | Not Documented | The Center for Professional Advancement, | -0- | N | 03/28/89 | 1 | 1,130.00 | -0 | 2 | ? |
| Radiation Safety Specialist Training Program | Provides understanding of the basic properties of radiation and its interactions, as well as biological effects and protection methods | Oklahoma State University, College of Engineering, Architecture and Technology | -0- | N | 03/06/89 | 1 | $700.00 | N | 2 | Y |
| Rail Car Emergency Response | Provides a basic knowledge of rail car construction, fittings, venting, regulations and placards. | Texas A&M University System, Texas Engineering Extension Services | -0- | N | -0- | -0- | $475.00 | N | 2 | -0- |
| RCRA 3800(h) Corrective Action Case Development Workshop | -0- | U.S. EPA, OSWER | -0- | N | 04/24/89 | 2 | -0- | -0 | -0- | -0- |
| RCRA Facilities Investigation Guidance Training | Date to be announced | U.S. EPA, OSWER | -0- | N | -0- | 3 | -0- | -0 | -0- | -0- |
| RCRA Inspector Institute | -0- | U.S. EPA, OSWER | -0- | N | 05/16/89 | 2 | -0- | -0 | -0- | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| RCRA Regulations Course | A comprehensive analysis of the law including current developments. | Government Institutes, Inc., | -0- | N | 08/02/89 | 1 | $895.00 | Y | 2 | Y |
| RCRA Training Program | Provides an in-depth review of RCRA for improved hazardous waste management and reduced liability. | Du Pont Safety Services, | -0- | N | -0- | -0- | 1,200.00 | N | 2 | Y |
| RCRA/SARA | Superfund developments (The 1986 superfund amendments ("SARA"). The future of the remedial technologies industry) | Hazardous Waste Treatment Council, | -0- | N | 10/27/88 | -0- | $295.00 | Y | 2 | Y |
| Real Estate Site Assessment | Presents the basic procedures for performing a site assessment based on site history. Designed for those who require or manage site assessments but don't perform them. | University of California - Davis, University Extension | -0- | N | 05/10/89 | 1 | $185.00 | Y | 2 | Y |
| Recent Developments and Current Practices in Odor Regulations, Controls and Technology | Lectures on the properties of odor, meteorological factors affecting odor dispersion, odor measurement methodology, sensory evaluation techniques, and community odor survey procedures. | Odor Committee (EE-6), | Solvents, Odors and Gases Control Committee (AE-2) | N | 10/23/89 | 1 | $335.00 | -0 | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Recognition and Identification of Hazardous Materials | Identifying hazardous materials problems in the community or workplace, recognizing the presence of hazardous materials and identifying hazardous materials and their associated hazard characteristics. | Eastern Michigan University, Corporate Services | -0- | N | 11/06/89 | 4 | $125.00 | -0 | -0- | Y |
| Refresher: Facility Survey | Focusis on changes in federal and state regulations, state-of-the-art procedures, new federal guidance documents and reports, and also reviews key aspects of the initial training course. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 02/21/89 | 4 | $95.00 | Y | 2 | Y |
| Refresher: Management Planning | Focusis on changes in federal and state regulations, state-of-the-art procedures, new federal guidance documents and reports, and also reviews key aspects of the initial training course. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 02/21/89 | 4 | $195.00 | Y | 2 | Y |
| Refresher: Project Management and Supervision | Focusis on changes in federal and state regulations, state-of-the-art procedures, new federal guidance documents and reports, and also reviews key aspects of the initial training course. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 01/17/89 | 5 | $195.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Regional Environmental Conferences | Updates in law at the federal level including RCRA, SARA, CWA, and CAA as well as a summary of state and regional issues | Executive Enterprises, Inc., | -0- | N | 09/18/89 | 2 | $895.00 | Y | 2 | -0- |
| Regulatory Liability | Not Documented | University of Findlay, The Emergency Response Training Center | -0- | N | 08/10/89 | 2 | $500.00 | N | 2 | N |
| Respiratory Protection and Chemical Protective Clothing | Provides the training necessary for the proper application of personal protective equipment in the workplace. | Harvard School of Public Health, Office of Continuing Education | -0- | N | 04/24/89 | 2 | $900.00 | N | 2 | N |
| Respiratory Protection for the Asbestos Abatement Industry | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 03/14/89 | 1 | $395.00 | -0 | 2 | ? |
| Respiratory Protection for the Asbestos Abatement Industry | This course is designed to meet training requirements (one of four) for licensure under Florida Statutes 455.301-455.308 as amended by House Bill 1473. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 02/15/89 | 1 | $550.00 | Y | 2 | -0- |
| Right To-Know Seminar | Right To-Know/Hazard communication | J.T.Baker, Office of Training Services | -0- | N | -0- | -0- | $115.00 | N | 2 | Y |
| Risk Analysis in Environmental & Occupational Health | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Harvard Educational Resource Center & U.S. Department of Health and Human Services | N | 09/06/89 | 1 | $650.00 | ? | 2 | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Risk Assessment | How to protect PRP rights, the impact proposition 65-type legislation on compony risk assessment processes, and how to better communicate scientific risk assessment to public | Center for Energy and Environmental Management (CEEM), | -0- | N | 09/22/88 | 1 | $595.00 | N | 2 | Y |
| Risk Assessment | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Illinois Educational Resource Center & U.S. Department of Health and Human Services | N | 07/01/89 | 1 | -0- | ? | 2 | ? |
| Risk Assessment and Management for Hazardous Materials: From Cradle to Grave | Program will enhance the participent's knowledge and understanding of methods in management so they are able to apply the process of risk assessment and management in their daily decision-making. | University of Virginia, Center for Risk Management of Engineering Systems | Commonwealth of Virginia, Department of Waste Management | N | 10/25/88 | 1 | $250.00 | N | N | Y |
| Risk Assessment and Risk Management | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | N | 06/01/89 | 1 | -0- | ? | 2 | ? |
| Risk Assessment, Risk Management and Risk Communication | More information in the FPA Institute Catalogue | U.S. EPA, OSWER | -0- | N | -0- | -0- | -0- | -0 | -0- | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Risk Communication of Environmental Hazards | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | John Hopkins Educational Resource Center & U.S. Department of Health and Human Services | N | 06/05/89 | 2 | $800.00 | ? | 2 | ? |
| Risk Management Training | Topics include: risk management development, hazards analysis, hazard identification, hazards assessment fault trees, and consequence analysis. | Stone and Weber Engineering Corporation, Chemical Plant Safety Program | -0- | N | 09/11/89 | 5 | $850.00 | -0 | -0- | -0- |
| Risk, Regulation & Bioremediation of Halogenated Aromatic Compounds | Not Documented | University of Wisconsin, Engineering Professoinal Development | -0- | N | 05/08/89 | 1 | $495.00 | -0 | 2 | ? |
| Safe Handling of Hazardous Materials | Comprehensive overview of the major aspects of hazardous chemical waste handling. | University of California - Davis, University Extension | -0- | N | 08/01/89 | 1 | $175.00 | Y | 2 | Y |
| Safety Analysis and Risk Assessment for Chemical Process Industry Practitioners | Consequence assessment and mitigation | AICHE, Center for Chemical Process Safety of AIChE | JBF Associates, Inc. | N | 04/17/89 | 1 | 1,295.00 | N | 2 | Y |
| Safety and Health Training For Hazardous Waste Personnel | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | N | 10/23/89 | 2 | -0- | ? | 2 | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Safety and Health Training For Hazardous Waste Personnel - Refresher | Not documented - Fee to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | N | 05/01/89 | 1 | -0- | ? | 2 | ? |
| Safety and Health Training for Hazardous Waste Site Personnel | Sampling and monitoring instruments and techniques, fit-testing of respiratory protective equipment, and detailed information on site sfety planning | Midwest Center for Occupational Health & Safety, | National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control (CDC), Public Health Services (PHS), U.S.Dept. of Health and Human Services (DHHS). | N | 10/06/88 | -0- | $330.00 | N | 2 | Y |
| Safety for Supervisors | Chemical safety, Mechanical safety, Electrical safety, Laser safety, Ergonomics, and Use of video display terminals. | J.T. Baker Chemical Company., Office of Training Services | -0- | N | -0- | -0- | $695.00 | N | 2 | Y |
| Sampling and Analysis for Airborne Asbestos Dust | Lectures on asbestos regulations, phase contrast microscopy theory, fiber counting rules, filter mounting methods, air sampling instrumentation and theory and more. Also includes lab sessions. | Environmental Training Corporation, | -0- | N | 08/28/89 | 1 | $500.00 | -0 | -0- | -0- |
| Sampling for Hazardous Materials | -0- | U.S. EPA, OSWER | -0- | N | 04/11/89 | 6 | -0- | -0 | -0- | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| SARA Title III | The emergency planning and community Right-To-Know Act of 1986 | Environmental Resource Center, | -0- | N | 10/18/88 | -0- | $295.00 | Y | 2 | Y |
| SARA Title III & OSHA Right-To-Know | Step-by-step Procedures for compliance with Title III of the Superfund amendments and OSHA's Hazard communication standard | Environmental Resource Center, | -0- | N | 01/04/89 | -0- | $295.00 | Y | 2 | Y |
| SARA Title III - Reporting Requirements | Prenents information for small generators on compliance and regulations. | Sumter Area Technical College, | -0- | N | 10/15/87 | 1 | $55.00 | N | -0- | Y |
| SARA Title III Compliance Update Course, Focusing on Your Community Right-To-Know Requirements | Presents a pratical understanding of SARA Title III, how and why you must report, how to protect trade secrets when reporting, and how to compile and manage data needed for reporting. | Government Institutes, | -0- | N | 11/16/88 | 1 | $795.00 | Y | 2 | Y |
| SARA Title III Industry Experience in Estimating Chemical Releases | Not Documented | Air & Waste Management Association, | -0- | 2 | 04/03/89 | 1 | $380.00 | -0 | 2 | ? |
| SARA Title III Workshop | Not Documented th, Service classifications, and various capabilities in regards to sewage disposal | Georgia Institute of Technology, Georgia Tech Research | -0- | Y | 04/19/89 | 1 | $125.00 | -0 | 2 | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Waste Minimization | | Succeeding At Wisconsin-Madison , Department of Engineering Professional Development . | | Waste Minimization | | University of | -0- | | N | 12/16/ |
| Succeeding at Waste Reduction/Minimization: Learn How to Manage Waste on a Cost-effective Step-by-step Basis | Hazardous and non-hazardous waste reduction/minimization, how to apply a systematic, cost-effective, and efficient program. | University of Wisconsin-Madison , Department of Engineering Professional Development | -0- | N | 09/27/89 | 1 | $350.00 | Y | 2 | Y |
| Sucessfully Resolving Milti-Party Hazardous Waste Disputes: Alturnatives to Litigation | Presents sucessful techniques for resolving liability issues regarding contaminated site clean-up costs without litigation. | Clean Sites, Public Policy and Education Division | American Arbitration Association, Department of Education and Training | N | 05/10/89 | 3 | $175.00 | Y | 2 | N |
| Summer Institute in Environmental Health Studies - Second Annual | A selection of 6 courses offered during a 2 week period. Topics include Toxicology, Risk Communication, and Risk Assessment. Either course credit or Continuing Education Units are available. | John Hopkins University, Department of Environmental Health Sciences | -0- | Y | 06/05/89 | 1 | $800.00 | N | 1&2 | Y |
| Supervising Hazardous Waste Operations | Not documented * Fees to be announced | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Washington Educational Resource Center & U.S. Department of Health and Human Services | N | 09/01/89 | 1 | -0- | ? | 2 | ? |

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|---|---|---|---|---|---|---|---|---|---|---|
| Supervision of Asbestos Abatement Projects: Course and Workshops | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | Y | 04/17/89 | 11 | $595.00 | -0 | 2 | ? |
| Supervisors of Hazardous Waste Operations | Provides the 40 hours of off-site health and safety training for employees engaged in hazardous waste operations plus the 8 hours of specalized training for supervisors reruired by OSHA | New Jersey/New York Hazardous Materials Worker Training Center, | National Institute Of Envoronmental Health Sciences | -0- | 01/25/89 | 7 | $150.00 | N | -0- | -0- |
| Supervisors of Hazardous Waste Operations | Not documented | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Minnesota Educational Resource Center & U.S. Department of Health and Human Services | N | 08/23/89 | 13 | $150.00 | ? | 2 | ? |
| Supervisors of Hazardous Waste Site Operations | OSHA required 8 hours of specialized training for supervisors of hazardous waste operations under CERCLA or RCRA | New Jersey/New York Hazardous Materials Worker Training Center, | University of Medicine and Dentistry of New Jersey - Robert Wood Johnson Medical School | N | 06/28/89 | 15 | $150.00 | N | -0- | ? |
| System Releability Engineering and Risk Assessment | Practical methods for evaluating the reliability, safety, and risk associated with complex engineered systems. | JBF Associates, Inc., | -0- | -0- | -0- | -0- | -0- | -0 | -0- | -0- |
| Tank Truck Emergency Response | Participants are given a basic knowledge of the valves, vents and appurtenances common to tank truck operations. | Texas A&M University System, Texas Engineering Extension Service | -0- | N | 07/10/89 | 5 | $475.00 | N | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| The Certificate in Environmental Health and Safety Law | Comprehensive, current information on the full range of environmental, health and safety law issues. The affect of environmental laws and how they are being interpreted and enforced. | Institute for Applied Management and Law, Inc., | -0- | N | 10/30/89 | 4 | 1,475.00 | -0 | -0- | Y |
| Toxic Sustances Control Act: Regulation, Enforcement and Compliance | Reporting requirements, PMNs, SNURs, Testing procedures, and Enforcement issues. | Government Institutes, Inc., | -0- | N | 12/01/88 | -0- | $795.00 | Y | 2 | Y |
| Toxicology for "Non-Toxicologists" | Industrial safety and health protection as well as to environmental compliance program development | Government Institutes, Inc., | -0- | N | 11/30/88 | -0- | $495.00 | Y | 2 | Y |
| Toxicology For Chemists | A dynamic learning experience featuring experts from each major area of toxicology | The American Chemical Society, Department of Continuing Education | -0- | N | 11/16/88 | -0- | 1,045.00 | Y | 2 | Y |
| Train the Trainer: Training Techniques for Hazardous Materials Trainers | Emphasis is on the basic pratical skills of identifying instructional needs, developing communication skills and planning and delivering instruction. | Sumter Area Technical College, South Carolina Environmental Training Center | -0- | N | 09/24/87 | 1 | $195.00 | N | 2 | Y |
| Training on Trial Burn Reporting and Setting Permit Conditions | Date to be announced | U.S. EPA, OSWER | -0- | N | -0- | 4 | -0- | -0 | -0- | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Training Program in Toxic Chemical Release Reporting SARA Title III, Section 313 | Learning appropriate skills required for completing the Toxic Chemical Release Reporting Form. | University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School, Universities Occupation Safety and Health Eductional Resource Center | -0- | N | -0- | 4 | $275.00 | N | 2 | Y |
| Training Program in Toxic Chemical Release Reporting: SARA Title II, Section 313 | This course explains the "Toxic Chemical Release Reporting Form R" and the calculations necessary to complete it. | University of Medicine & Dentistry of New Jersey-Robert Wood Johnson Medical School, Environmental & Occupational Safety and Health Education and Training | -0- | N | 07/10/89 | 7 | $275.00 | N | 2 | Y |
| Transmission Electron Microscopy Asbestos Analysis Course | Not Documented | Georgia Institute of Technology, Georgia Tech Research Institute | -0- | N | 03/06/89 | 4 | 2,500.00 | -0 | 2 | ? |
| Transport and Fate of Contaminents in the Subsurface | -0- | U.S. EPA, OSWER | -0- | N | 08/01/89 | 1 | -0- | -0 | -0- | -0- |
| Transportation of Hazardous Materials | Not Documented | University of Findlay, The Emergency Response Training Center | -0- | N | 06/07/89 | 3 | $550.00 | N | 2 | N |
| Transportation of Hazardous Materials and Waste | Offered at varying times. | National Institute for Occupational Safety and Health (NIOSH), Educational Resource Centers | Southern California Educational Resource Center & U.S. Department of Health and Human Services | N | 07/10/89 | 5 | $100.00 | ? | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Treatment of Contaminated Soil and Rock | A three day course in conventional and emerging technologies for reclaimation of contaminated land with emphasis on in situ methodologies. | Center for Professional Advancement, | -0- | N | 07/10/89 | 1 | $895.00 | N | 2 | Y |
| Trends and Tools for Industrial Environmental Management | Environmental Management | University of Wisconsin-Madison , Department of Engineering Professional Development . | Institute of Environmental Auditing | N | 12/07/88 | -0- | $600.00 | N | -0- | Y |
| Trends and Tools for Industrial Environmental Management | Environmental Auditing | University of Wisconsin-Madison , Department of Engineering Professional Development . | Institute of Environmental Auditing | N | 12/06/88 | -0- | $300.00 | N | -0- | Y |
| Troubleshootin g: Activated Sludge Problems in Wastewater Treatment Plants | Provides wastewater plant operators with current information in the area of troubleshooting operations and maintenance problems. | University of Florida, Continuing Education Center, TREEO Center | -0- | N | 03/28/89 | 2 | $300.00 | Y | 2 | -0- |
| U.S. Government Affiars Seminar of the Air and Waste Management Association, 17th Annual | Discusses the environmental challanges of the 90s - including the Clean Air Act, municipal wastes, paying for cleanup, and global warming | Air and Waste Management Association, | | N | 03/16/89 | 1 | $325.00 | N | 2 | N |

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|---|---|---|---|---|---|---|---|---|---|---|
| Uncontrolled Hazardous Waste Problems, Investigating and Evaluating Solutions | General goal is to address the major topics related to the management of uncontrolled substances. Real world case studies will be used to illustrate pratical application of problem solving techniques | University of Wisconsin-Milwaukee, College of Engineering and Applied Science | -0- | N | 10/15/86 | 1 | $490.00 | Y | 2 | Y |
| Underground Storage Tanks | The Michigan Underground Storage Tank Regulatory Program, focusing on the structure of the Hazardous Materials Section of the Michigan State Police Fire Marshal Division. | Engineering Society of Detroit, The Society for Environmental Science | -0- | N | 09/20/89 | 1 | $20.00 | Y | -0- | -0- |
| Underground Storage Tanks | Management of underground storage systems. | Texas A&M University System, Texas Engineering Extension Services | -0- | N | -0- | -0- | $895.00 | N | 2 | -0- |
| Underground Storage Tanks: Meeting Technical and Regulatory Challenges | A thorough review of the final rule, a discussion of the effect of electrolytic corrosion on piping and tank systems, and analysis of other failure mechanisms. | AICHE, Continuing Education | -0- | N | 03/15/90 | 6 | $695.00 | Y | -0- | Y |
| Underground Storage Tanks: Smart Management and Engineering Applications | UST management, operations, maintenance, engineering and/or installation topics will be covered. Provides all aspects of developing an effectivetank management program. | Government Institutes, Inc., | Hart Environmental Management Corporation | N | 09/28/89 | 1 | $895.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Understanding Industrial Environmental Regulations | Environmental regulations, when they apply, their affects, and strategies to cope with the requirements. | University of Wisconsin-Madison, Department of Engineering Professional Development | -0- | N | 09/25/89 | 1 | $575.00 | Y | 2 | Y |
| Understanding Regulations | Not Documented | University of Findlay, The Emergency Response Training Center | -0- | N | 09/21/89 | 1 | $400.00 | N | 2 | N |
| Understanding the Risks, Regulation, and Bioremediation of Halogenated Aromatic Hydrocarbons | Course examines chemistry, fate, transport, and hazards of halogenated aromatic hydrocarbons. Also examines how to use bioremediation techniques to degrade persistant contaminants. | University of Wisconsin - Madison, Biotechnology Center & Environmental Toxicology Center | -0- | N | 05/08/89 | 1 | $595.00 | Y | 2 | Y |
| University and College Hazardous Waste Conference | Provides a forum for the presentation and exchange of pratical information, experiences, and ideas regarding hazardous waste management at the nation's universities. | Arizona State University, Office of Hazardous Materials Management | -0- | N | 07/24/88 | 1 | $70.00 | N | -0- | N |
| Use of Hazard and Operability Studies In Process Analysis | Introduction into "What If" failure mode and effect, fault tree analysis, consequence analysis, concepts of acceptable risk, and avialable computer programs. | AIChE, Continuing Education | -0- | N | 04/05/89 | 4 | $595.00 | Y | 2 | -0- |

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|---|---|---|---|---|---|---|---|---|---|---|
| Using Environmental Auditing to Effectively Manage Risk | The basic audit process, vendor hazardous waste applications, compliance applications, real estate site assessments (profiles), and sampling Methodologies. | University of Wisconsin-Madison , Department of Professional Development | -0- | N | 10/30/89 | 1 | $600.00 | Y | 2 | Y |
| Waste Minimization Workshop | -0- | U.S. EPA, OSEWR | -0- | N | 04/18/89 | 4 | -0- | -0 | -0- | -0- |
| Waste Minimization Workshop | Covers emerging waste minimization techniques to reduce cost and avoid non-compliance enforcement | Auburn University, Continuing Engineering Education | Alabama Dept. of Environmental Management | N | 08/08/89 | 1 | $195.00 | N | 2 | Y |
| Waste Not Want Not - Meeting of the 1990 Hazardous Materials Mandate | A large selection of 1 1/2 hour courses related to hazardous waste | Academy of Certified Hazardous Materials Managers, | -0- | N | 07/25/89 | 1 | $400.00 | N | 2 | N |
| Waste Reduction, Recycling, Incineration and Landfills | Not Documented | Illinois Dept. of Energy and Natural Resources, | -0- | N | 04/18/89 | 1 | -0- | -0 | 2 | ? |
| Wastewater Treatment Design for the Removal of Priority Pollutants and Toxic Organics | Provides an understanding of causes and effects of toxicity in industrial wastewater. Laboratory and piolet plant procedures will be presented. | Technomic Publishing Company, Inc., | Vanderbuilt University | N | 05/31/89 | 1 | $675.00 | Y | 2 | Y |

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|---|---|---|---|---|---|---|---|---|---|---|
| Wastewater Treatment in the Organic Chemicals Industry | Persents the scope and status of current regulation, techniques for characterization and control of wastewater pollutents, and wastewater treatment technologies. | Center for Professional Advancement, | -0- | N | 08/01/89 | 1 | $895.00 | N | 2 | Y |
| Water and Wastewater Treatment, Disposal and Reuse | To assess alternatives for treating water, select treatment and disposal systems, design systems and evaluate cost. | George Washington University, Continuing Education Program, School of Engineering and Applied Science | -0- | N | 11/01/89 | 1 | $840.00 | N | 2 | Y |
| Water Quality Engineering for Industry | The course is designed to impart the fundamentals of water pollution control technology. | AICHE, Continuing Education | -0- | N | 03/15/90 | 6 | $650.00 | Y | -0- | Y |
| Workshop on Test Methods for Evaluation of Solid Waste | Provide increased understanding of testing schemes and methods of sampling for hazardous waste, physical testing for bulking and compatability of waste, and quality control. | University of Michigan, Dept. of Environmental and Industrial Health, School of Public Health | -0- | N | 07/18/88 | 1 | $300.00 | N | -0- | Y |

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# FINAL TRAINING AND EDUCATION LISTS

# VOLUME 2: UNIVERSITY PROGRAMS

## (TASK 8 DELIVERABLE)

## EVALUATION OF HAZARDOUS WASTE EDUCATION AND TRAINING

CONTRACT NO. 240-88-0069

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SUBMITTED TO

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## Introduction

In accordance with contract 240-88-0069, these two volumes present the final education and training lists. Although described as final, for the sake of completeness and accuracy the data collection for these lists will continue for the duration of the project. These lists cover two areas: 1) short courses, workshops and training sessions in hazardous waste (Volume 1) and 2) hazardous waste education provided by universities in the form of regular courses and degrees (Volume 2).

Information was collected both actively and passively. The active collection of data was achieved by using a WSU funded questionnaire mailing. Several groups were targeted for an initial, selective questionnaire mailing. These groups included members of the Expert Review Panel associated with universities, the NEHA Educational Institution members, accredited U.S. Schools of Public Health, NIOSH members, NIEHS members, Centers for Superfund Directors, Directors of Centers for Hazardous Waste Management and schools offering degrees in Industrial Safety and Health or Environmental and Occupational Health.

After some replies were received and the questionnaire was refined, a comprehensive mailing was conducted. This 1469 member mailing included all four year degree granting institutions (excluding seminaries and bible colleges) in the U.S. including Puerto Rico and the U.S. Virgin Islands. This mailing list was obtained from the 1989 HEP Higher Education Directory which contains a listing of all accredited institutions of post-secondary education in the United States which meet the U.S. Department of Education eligibility requirements. It was necessary in some cases to augment the responses on the questionnaire using references such as the 1989 Peterson's Guide to Graduate Programs in Engineering and Applied Science, the 1988 Graduate School Guide and the AIChE Graduate School Directory.

In addition to active solicitation, data was collected using resources in the Chemical Engineering and Occupational and Environmental Health Departments such as college catalogues and brochures mailed to the departments. Data collected on short courses was predominantly collected in this manner.

This database represents a response rate of 26% (380 different schools responding out of 1469 different schools contacted). The response was higher for the selective mailing (47%) and lower for the bulk mailing (23%) as expected.

The database is rather flexible and can be sorted by any field or word in a field appearing in the database report. All of the database tables also contain a "comments" column which, although not printed, can be used to sort the data. For example, the database table on university education can be sorted by those contacted through bulk mailing or those contacted through selective mailing using the "comments" column.

## Short Courses, Workshops, and Training Sessions
(Volume 1)

The two "Hazardous Waste Educational Programs" database reports in Volume I contain information collected about short courses, workshops and training sessions. These programs do not lead to a degree themselves, though several of them can be used to obtain some course credit at the sponsoring university. The majority of the programs provide Continuing Education Units and a few are designed specifically to meet OSHA off-site training requirements.

The information about the programs is separated into two reports. The first report is designed to provide general information about the program and a contact name, phone number and address for further information. This report contains the following columns:

1) PROGRAM NAME - Notes the program title. The programs are listed alphabetically by title.
2) CONTENT - Provides a brief summary of the content.
3) SPONSOR ORGANIZATION - Notes the organization or university and department responsible for the program.
4) COSPONSOR - Notes any additional organizations responsible for the program.
5) CONTACT PERSON - Provides a contact person (if available) and phone number to request further information.
6) ADDRESS - Notes an address to obtain further information.
7) CONTACT HRS - Notes the number of hours actually spent in the program, excluding lunch hours and breaks.
8) TARGET - Supplies a specific target audience for the program, if known.

The second report supplies more specific information about the programs. It contains the first four columns in the first report plus the following seven additional columns:

1) EXAM - Notes whether (Y) or not (N) an exam is required in the program.
2) PROG. TIME - Provides the date of the first offering of the course.
3) NO. OF SESS. - Notes the number of times the particular program will be offered during the year. The first session is offered on the date of "Prog. Time" and any additional sessions are offered after that date.
4) FEE - Notes the cost of the program. This cost does not include discounts for multiple attendance or membership discounts. Lodging and meals are not included.
5) CR. CARD - Notes whether (Y) or not (N) the sponsoring organization accepts a credit card.
6) COLL. CR. (1) or CEU's (2) - A 1 in this column indicates that college credit is available, a 2 indicates that Continuing Education

7) MANUAL - Notes whether (Y) or not (N) a manual or study guide is provided and included in the program cost.

Since these database reports cannot present all the information provided in the program brochures, the brochures have been retained to supplement the database.

## Hazardous Waste Education Provided By Universities (Volume 2)

The information about university programs is also divided into two database reports. Both reports are included in Volume II. These reports are not presented in column form because of the large number of fields. For increased clarity, the data for each university is presented as a chart instead. The first report contains general information on the hazardous waste education provided by universities in the form of course work. The report provides:

1) The university name and address.
2) The respondents name and phone number.
3) The type of hazardous waste education provided (undergraduate, graduate, or non-credit).
4) A program name, if any.
5) A list of colleges, departments, and disciplines providing each type of education.
6) A list of degrees containing hazardous waste courses and the distinction of whether the hazardous waste courses are electives, required, part of an option, or part of a certificate; along with an estimate of the fraction of the total course work which is hazardous waste related.

The second database report was designed to contain more specific information about structured university programs. It includes the inception dates, enrollment rates and graduation rates. The section of the questionnaire dealing with this data was unsuccessful because two few respondents were able to provide meaningful data. This section of the database will be excluded from further evaluation.

# REPORT I

## GENERAL INFORMATION ON UNIVERSITY PROGRAMS AND CREDIT COURSE WORK IN HAZARDOUS WASTE

**arranged alphabetically by university**

School Name: Alabama, University of
School Address: P.O. Box 870203, Tuscaloosa AL 35487
Respondant: Dr. Irvin Jefcoat, (205)348-1735
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Included in Environmental Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Continuing Studies | Engineering | Engineering |
| Department | Environmental & Industrial Programs | Environmental | Environmental |
| Other Colleges | Civil, Chemical Engineering | -0- | -0- |
| Partic. Discip. | Geology | Civil, Chemical Eng., Economics | Civil, Chemical, Geology, Biology |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS, MS, PhD Environmental Engineering | Y | ?? | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Berry College
School Address: Berry Station, Rome GA 30149
Respondant: James Rhoades, (404)236-2237
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Part of one course in Chemistry

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Boise State University
School Address: 1910 University Drive, Boise ID 83725
Respondant: Lee Stokes, (208)385-3999
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Health Science | Health Science |
| Department | -0- | Environmental Health | Environmental Health |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS or MS Environmental Health | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Boston University
School Address: 80 E. Concord Street, Boston MA 02118
Respondant: Leslie Boden, (617)638-4620
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Boston Univ. Medical Center |
| Department | -0- | -0- | School of Public Health |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | Envir. Health, Toxicology, Microbiology |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Masters of Public Health | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Bowling Green State University
School Address: Envir. Health Prog., 102 Health Center, Bowling Green OH 43403
Respondant: Gary Silverman, (419)372-7774
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Included in Environmental Health

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Health and Human Services | -0- |
| Department | -0- | Environmental Health | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Health | ? | Y | N | N | 50 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Bradley University
School Address: College of Engineering & Technology, Peoria IL 61625
Respondant: Dr. R. P. Jetton, (309)677-2720
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Included in Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering & Technology | Engineering & Technology |
| Department | -0- | Civil | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Civil Engineering | Y | N | N | N | 5 |
| M.S. Civil Engineering | Y | N | N | N | 10 |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Brown University
School Address: Box 1943, Providence RI 02912
Respondant: Harold University, (401)836-3449
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Noncredit: Strategies for Hazardous Waste Reduction, Credit: NONE Included as part of 2 courses in Environmental Studies

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | Center for Environmental Studies | Center for Environmental Studies | Center for Environmental Studies |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS, MS(?) Environmental Studies | N | Y | N | N | >10 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Bryant College
School Address: 450 Douglas Pike, Smithfield RI 02917
Respondant: Timothy Cartwright, (401)232-6210
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Hazardous Materials Transportation (1 Class)

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Part-time Studies | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. or B.A. Transportation | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California Institute of Technology
School Address: , Pasadena CA 91125
Respondant: ,
Hazardous Waste Education Provided: Graduate
HW Program Name: None - Included in Environmental Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Environmental |
| Other Colleges | -0- | -0- | ? |
| Partic. Discip. | -0- | -0- | ? |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. or Ph.D. Environmental Engineering | Y | ? | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California Polytechnic State University
School Address: , San Luis Obispo CA 93407
Respondant: William Rife, (805)756-2246
Hazardous Waste Education Provided: Undergrad.
HW Program Name: NONE - included in Civil Engineering, Chemistry, and Crop Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | -0- |
| Department | -0- | Civil & Environmental | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | Chemistry, Crop Science, Indust. Tech. | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Civil Engineering | Y | N | N | N | >5? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California State University - Fresno
School Address: School of Health and Social Work, Fresno CA 93740
Respondant: Sanford Brown, (209)294-4004
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: NONE - Included in Civil Engineering and Health Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | School of Health and Social Work | School of Health and Social Work | School of Engineering |
| Department | -0- | Health Science | Civil Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | Civil Engineering | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. in Health Science | Y | N | N | N | ? |
| M.S. in Civil Engineering | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California State University - Long Beach
School Address: 1250 Bellflower Blvd., Long Beach CA 90840
Respondant: Audrey Cuff, (213)985-4111
Hazardous Waste Education Provided: Non-credit
HW Program Name: Environmental Auditing

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Extension Services | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Environmental Auditing | N | Y | N | Y | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California State University - Northridge
School Address: 18111 Nordhoff Street, Northridge CA 91330
Respondant: Dennis Kelly, (818)885-2346
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: NONE - Included in Environmental Health

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Environmental Health | Environmental Health |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS & MS Environmental Health | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California, University of - Berkeley
School Address: , Berkeley CA 94720
Respondant: James Hunt, (415)642-0948
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | U. C. Extension | Engineering & Public Health | Engineering & Public Health |
| Department | -0- | C.E., Ch.E., M.E. | C.E., Ch.E., M.E., |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. or M.S. in Civil Engineering | Y | N | N | N | ? |
| M.S. Chemical/Petroleum Engineering | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California, University of - Los Angeles
School Address: , Los Angeles CA 90024
Respondant: ,
Hazardous Waste Education Provided: Non-Credit
HW Program Name: Non-credit Hazardous Wastes Management Certificate

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | UCLA | -0- | -0- |
| Department | University Extension | -0- | -0- |
| Other Colleges | Engineering | -0- | -0- |
| Partic. Discip. | Toxicology, geology, Health and Safety | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California, University of - Santa Cruz Extension
School Address: 5201 Great America Pkwy, Ste. 132, Santa Clara CA 95054
Respondant: Tim Johnson, (408)562-5711
Hazardous Waste Education Provided: Non-credit
HW Program Name: Hazardous Materials Management Certificate

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | JCSC Extension | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: California, University of - System
School Address: , Davis CA 95616
Respondant: Mona Ellerbrock, (916)752-6021
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Environmental Toxicology

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Agriculture & Engineering | Agriculture & Engineering | Agriculture & Engineering |
| Department | University Extension | many | many |
| Other Colleges | -0- | -0- | Medicine & Arts and Sciences |
| Partic. Discip. | Many | Many | Many |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS or MS Civil Engineering | Y | ? | N? | Y | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Carnegie-Mellon University
School Address: 5000 Forbes Ave., Pittsburgh PA 15213
Respondant: Dr. Richard Luthy, (412)268-2000
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | Engineering and Public Policy |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS Civil Engineering | Y | Y | N | N | -0- |
| PhD Civil Engineering | Y | Y | N | N | -0- |
| PhD Engineering and Public Policy | Y | Y | N | N | -0- |

School Name: Carroll College
School Address: 100 N. East Ave., Waukesha WI 53186
Respondant: Dr. Richard Bayer, (414)524-7156
Hazardous Waste Education Provided: Undergrad.
HW Program Name: One Course in Chemistry

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Carroll | -0- |
| Department | -0- | Chemistry | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Chemistry | N | Y | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Central Florida, University of
School Address: , Orlando FL 32816
Respondent: C. D. Cooper, (407)275-2388
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Included in Environmental Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | | Civil & Environmental | Civil and Environmental |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S.E. Environmental Engineer | N | Y | N | N | 5? |
| M.S. Environmental Engineer | N | Y | N | N | 10? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Central State University
School Address: 100 N. University Dr., Box 159, Edmond OK 73034
Respondant: Dr. Albert Lynd, (405)341-2980
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Included in Industrial Safety

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Education | Education |
| Department | -0- | Safety | Safety |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Industrial Safety | N | Y | N | N | 20 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Christopher Newport College
School Address: 50 Shoe Lane, Newport News VA 23606
Respondant: Dennis Ridley, (804)594-7392
Hazardous Waste Education Provided: Non-credit
HW Program Name: Hazardous Materials and Waste Management - a live interactive teleconference

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Christopher Newport | -0- | -0- |
| Department | ?? | -0- | -0- |
| Other Colleges | Thomas Nelson Community College | -0- | -0- |
| Partic. Discip. | ?? | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Cincinnati, University of
School Address: , Cincinnati OH 45221
Respondant: R. Scott Summers, (513)556-3648
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: NONE - included in Civil and Environmental Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil and Environmental | Civil and Environmental |
| Other Colleges | -0- | -0- | Medical School |
| Partic. Discip. | -0- | -0- | Environmental Health |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS, PhD Environmental Engineering | Y | ? | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Clarkson University
School Address: , Potsdam NY 13676
Respondant: ,
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil & Environmental | Civil & Evironmental |
| Other Colleges | -0- | ?? | ?? |
| Partic. Discip. | -0- | ?? | ?? |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS or MS Civil and Environmental | Y | Y | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Clemson University
School Address: Environmenntal Systems Engineering, Clemson SC 29634
Respondant: T. M. Keinath, (803)656-5572
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Hazardous Waste Treatment Systems & Hazardous Waste Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Engineering | Engineering | Engineering |
| Department | Environmental Systems Engineering | same | same |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M. Engineer or M.S. Environmental System | Y | Y | N | N | 60 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Cleveland State University
School Address: East 24th and Euclid Ave., Cleveland OH 44115
Respondant: Camilla, (216)687-2000
Hazardous Waste Education Provided: Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Division of Continuing Education | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Fire Fighters Hazmat Courses | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Cornell University
School Address: , Ithaca NY 14853
Respondant: Richard Schuler, (607)255-7579
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Agriculture | Engineering | Agriculture and Engineering |
| Department | Natural Resources, Agricul. Engineering | Civil and Environmental | Civil and Environmental |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS & MS Civil Engineering | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Cumberland College
School Address: Walnut Street, Williamsburg KY 40769
Respondant: Ann Hoffelder, (606)542-2200
Hazardous Waste Education Provided: Non-credit
HW Program Name: Safety in the Academic Laboratory - one class for teaching and laboratory assistants

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Cumberland | -0- | -0- |
| Department | Chemistry | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Dayton, University of
School Address: 300 College Park, Dayton OH 45469
Respondant: , (513)229-1000
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | School of Engineering | -0- |
| Department | -0- | Technology Division | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Environmental Engineering Technology | N | Y | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Delaware, University of
School Address: , Newark DE 19716
Respondant: Cindy Davis, (302)451-2000
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil Engineering | Civil Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Civil Engineering | Y | N | N | N | -0- |
| MS Civil Engineering | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Deleware Valley College of Science & Agriculture
School Address: , Doylestown PA 18901
Respondant: Robert Orr, (215)345-2482
Hazardous Waste Education Provided: Undergrad.
HW Program Name: 3 courses, one each in Chemistry, Biochemistry, and Food Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Deleware Valley State | -0- |
| Department | -0- | Chemistry, Biochemistry, & Food Science | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: DePaul University
School Address: 25 East Jackson Blvd., Chicago IL 60604-2287
Respondant: Mr. Brightbiel, (312)341-8000
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Liberal Arts | -0- |
| Department | -0- | Chemistry | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Chemistry | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Detroit College of Law
School Address: 130 East Elizabeth, Detroit MI 48201
Respondant: Nancy Heathcote, (313)965-0150
Hazardous Waste Education Provided: Graduate
HW Program Name: 2 elective courses for law degree

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Law School |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Law Degree | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Drexel University
School Address: 32nd and Chestnut, Philadelphia PA 19104
Respondant: W. O. Pipes, (215)895-1984
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering and Science |
| Department | -0- | Civil | Environmental Studies |
| Other Colleges | -0- | Chemical & Mechanical Engineering | Civil, Chemical & Mechanical Engineering |
| Partic. Discip. | -0- | Chemistry | Chemistry, Biology |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Civil, Chemical, or Mechanical | Y | N | Y | N | 10% |
| M.S. Environmental Engineering | Y | N | N | Y | ?? |
| M.S. Environmental Engineering w/ Hazardous | Y | Y | Y | N | 100 |

School Name: Duke University
School Address: Civil Engineering, Durham NC 27706
Respondant: Pavesilind, (919)684-2434
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Courses in Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S.E. Civil Engineering | Y | N? | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: East Carolina University
School Address: Dept. of Environmental Health, Greenville NC 27858
Respondant: Dr. Gary Smith, (919)757-6961
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Included in Environmental Health

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Allied Health | -0- |
| Department | -0- | Environmental Health | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Health | N | Y | N | N | 50 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: East Central University
School Address: , Ada OK 74820-6899
Respondant: Dan Boatright, (405)332-8000
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Physical and Environmental Science | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Environmental Science | Y | Y | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: East Tennessee State University
School Address: Box 22960A, Johnson City TN 37614
Respondant: Guy R. Lanza, (615)929-4268
Hazardous Waste Education Provided: Non-credit
HW Program Name: Presently developing hazardous materials option in M.S. Environmental Health

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Eastern Kentucky University
School Address: Dept. Of Environmental Health Science, Richmond KY 40475
Respondant: Oris Blackwell, (606)622-1939
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Environmental Health Science | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Environmental Health | N? | Y | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Edinboro University of Pennsylvania
School Address: , Edinboro PA 16444
Respondant: Phillip P. Kerstetter, (814)732-2720
Hazardous Waste Education Provided: Undergrad.
HW Program Name: NONE - Included in Physics and Technologies

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Physics and Technologies | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Fire Protection?? | N | Y | N | Y | 15 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Ferris State University
School Address: 901 South State, Big Rapids MI 49307
Respondant: Michael D. Elle, (616)592-2295
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Included in Industrial and Environmental Health Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | School of Allied Health | -0- |
| Department | -0- | Industrial and Environmental Health | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Industrial and Environmental Health | Y | N | Y | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Findlay, University of
School Address: 1000 North Main Street, Findlay OH 45840-3695
Respondant: J. Randal Van Dyne, (419)424-4572
Hazardous Waste Education Provided: Undergrad., Non-credit
HW Program Name: Hazardous Materials Certificate, hazardous materials minor in several liberal arts degrees and Bachelor's degree in Hazardous Materials

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Liberal Arts | Liberal Arts | -0- |
| Department | Emergency Response Training Center | Biology, Chemistry, Pre-engineering ?? | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| A.S. in Hazardous Materials Management | Y | Y | -0 | -0 | 100 |
| Minor in HW in Biological, Physical | Y | Y | Y | -0 | 50 |
| Certificate in Hazardous Materials | Y | Y | -0 | Y | 100 |

School Name: Florida, University of
School Address: Black Hall, Gainesville FL 32611
Respondant: W. L. Miller, (904)392-7101
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Part of Environmental Engineering - No specific program

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Environmental | Environmetal |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Engineering | N | Y | N | N | 10% |
| M.S. Environmental Engineering | Y | Y | N | N | 30% |
| Ph.D. Environmental Engineering | Y | Y | N | N | 70% |

School Name: Front Range Community College
School Address: 3645 West 112th Avenue, Westminster CO 80030
Respondant: Martin VanDyke, (303)466-8811
Hazardous Waste Education Provided: Undergrad., Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Georgetown University
School Address: 37th and O Street, Washington DC 20057
Respondant: Dr. Irving Gray, (202)687-5892
Hazardous Waste Education Provided: Non-credit
HW Program Name: Radiation Biology - Hazardous waste is a small part of this one course

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Georgia Institute of Technology
School Address: School of Civil Engineering, Atlanta GA 30332
Respondant: Dr. Nemeth & Dr. Saunders, (404)894-2265
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Part of Environmental Engineering and Georgia Tech Research Institute

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Georgia Tech Research Institute | Engineering | Engineering |
| Department | Environmental Science Tech Division | Civil Engineering | Civil Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | Environmental Engineering | Environmental Engineering |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS, MS, PhD Environmental Engineering | Y | ?? | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Georgia State University
School Address: University Plaza, Atlanta GA 30303
Respondant: R. M. Boyd, (404)651-2282
Hazardous Waste Education Provided: Non-credit
HW Program Name: Radiological Safety Training (40 Hour Course)

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | Occupational Safety & Risk Management | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Glenville State College
School Address: , Glenville WV
Respondant: James Peterson, (304)462-7361
Hazardous Waste Education Provided: Non-credit
HW Program Name: ??

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Grand Valley State University
School Address: Science & Mathmatics, 330 Loutit Hall, Allendale MI 49401
Respondant: P. Douglas Kindschi, (616)895-2261
Hazardous Waste Education Provided: Undergrad.
HW Program Name: NONE - included in Health Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Health Sciences | -0- |
| Department | -0- | Occupational Safety and Health | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Occupational Safety and Health | N | Y | N | N | 50? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Hamline University
School Address: Snelling and Hewitt Aves., St. Paul MN 55104-1284
Respondant: Bev (Dean's Office Sec.), (612)641-2800
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Liberal Arts |
| Department | -0- | -0- | Public Administration |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MA Public Administration | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Hampshire College
School Address: School of Natural Science, Amherst MA 01002
Respondant: Dula Amarasiriwardema, (413)549-4600
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Included in part of 2 classes in Natural Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Harvard University
School Address: 665 Huntington Avenue, Boston MA 02115
Respondant: Darryl Bichel, (617)732-1260
Hazardous Waste Education Provided: Graduate, Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Public Health | -0- | Public Health |
| Department | Office of Continuing Education | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS Public Health | Y | -0 | -0 | -0 | -0- |
| MPH Public Health | Y | -0 | -0 | -0 | -0- |
| Doctorate Public Health | Y | -0 | -0 | -0 | -0- |

School Name: Hawaii, University of
School Address: 1960 East-West Road, Honolulu HI 96822
Respondant: Harlan Hashimoto, (808)948-8894
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | School of Public Health |
| Department | -0- | -0- | Public Health Sciences |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MPH & Dr.PH (Public Health) | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Houston, University of - Clear Lake
School Address: 2700 Bay Area Blvd., Houston TX 77058
Respondant: L. James Lester, (713)488-9320
Hazardous Waste Education Provided: Graduate
HW Program Name: Included in Environmental Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Business & Public Affiars |
| Department | -0- | -0- | Environmental Management |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental Management | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Howard University
School Address: Department of Civil Engineering, Washington DC 20059
Respondant: James Johnson, (202)636-6570
Hazardous Waste Education Provided: Graduate
HW Program Name: Environmental and Water Resource Engineering (Treatment Option)

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil and Chemical Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental Engineering | Y | Y | Y | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Idaho State
School Address: , Pocatello ID 83209-0009
Respondant: Mike Gallager, (208)236-2902
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Materials Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Engineering | Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS General Engineering | Y | N | N | N | -0- |
| MS Materials Science | N | Y | N | N | -0- |
| MS Nuclear Science and Engineering | N | Y | N | N | -0- |

School Name: Idaho, University of
School Address: Idaho Falls Center, Box 778, Idaho Falls ID 83402
Respondant: Marv Eld, (208)526-1388
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Included in Industrial Technology as Waste Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | University of Idaho | -0- |
| Department | -0- | Industrial Technology | -0- |
| Other Colleges | -0- | Idaho State University | -0- |
| Partic. Discip. | -0- | Safety, Environmental Science | Safety, Environmental Science |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Illinois Institute of Technology
School Address: IIT Center, Chicago IL 60616
Respondant: Paul Anderson, (312)567-3531
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Hazardous Waste Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Environmental Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | Environmental Engineering |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS. PhD Environmental Engineering | Y | Y | Y | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Illinois State University
School Address: , Normal LI 61761
Respondant: Heinz Russelmann, (309)438-8329
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Applied Science and Technology | -0- |
| Department | -0- | Health Science | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Health | N | Y | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Illinois, University of - Chicago
School Address: Block 6998, Chicago IL 60680
Respondant: Dr. Hallenbeck, (312)996-0865
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | School of Public Health |
| Department | -0- | -0- | Environmental and Occupational Sciences |
| Other Colleges | -0- | -0- | Civil Engineering, Metallurgy |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MPH & Dr.PH - Public Health | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Illinois, University of - Urbana- Champaign
School Address: 1208 W. Peabody, Urbana IL 61801
Respondant: Peter Askbrook, (217)333-2755
Hazardous Waste Education Provided: Graduate, Non-credit
HW Program Name: Non-credit "Hazardous Waste Worker Training" & Classes included in Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Institute of Labor & Industrial | -0- | Engineering |
| Department | ?? | | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Civil Engineering | Y | Y | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Indiana State University
School Address: Dept. of Health and Safety, Terre Haute IN 47809
Respondant: John Doty, (812)237-3071
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Part of Environmental Health

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Health and Safety | Health and Safety |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental Health | N | Y | N | N | 30 |
| M.S. Safety Management | Y | Y | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Indiana University
School Address: 400 E. 7th Street, Bloomington IN 47405
Respondant: Dr. Robert Piercy, (812)855-9488
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: NONE- Included in Public Health as electives and required courses

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | SPEA | SPEA |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | HPER | HPER |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS, MS in Public and Environmental Health | Y | Y | N | N | ?? |
| BS Occupational Health and Safety | Y | Y | N | N | ?? |
| MS Safety Management | Y | Y | N | N | ?? |

School Name: Iowa, University of
School Address: Civil & Environmental Engineering, Iowa City IA 52242
Respondant: Dr. D. B. McDonald, (319)335-5176
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Included in Environmental Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil & Environmental | Civil & Environmental |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Engineering | Y | N | N | N | ?? |
| M.S. Environmental Engineering | Y | N | N | N | 15 |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Jersey City State College
School Address: 2039 Kennedy Blvd., Jersey City NJ 07305-1597
Respondant: , (201)547-6000
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Liberal Arts | -0- |
| Department | -0- | Criminal Justice and Fire Science | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Fire Science | N | Y | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Kansas State University
School Address: Durland Hall, Manhattan KS 66506
Respondant: Larry Erickson, (913)532-5584
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: No Formal Program

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Engineering | Engineering | Engineering |
| Department | Engineering Extension | Chemical & Civil | Chemical & Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Chemical Engineering | Y | N | N | N | ?? |
| M.S. Chemical Engineering | Y | N | N | N | ?? |
| B.S. Civil Engineering | Y | N | N | N | ?? |

School Name: Kansas, University of
School Address: 6600 College Blvd., Suite 315, Overland Park KS 66211-1522
Respondant: , (913)491-0181
Hazardous Waste Education Provided: Non-credit
HW Program Name: Non-credit asbestos training course

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | University of Kansas | -0- | -0- |
| Department | National Asbestos Training Center | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Lamar University
School Address: 4400 M. L. King, Beaumont TX 77710
Respondant: William Cawley;A.Anderson, (409)880-8768
Hazardous Waste Education Provided: Graduate, Non-credit
HW Program Name: Asbestos Abatement & EPA and OSHA Requirements (noncredit)

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Public Service | -0- | Engineering |
| Department | Occupational Health and Safety | -0- | Environmental |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | Industrial Hygiene, Medicine | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental Engineering | Y | Y | Y | N | ? |
| M.S. Environmental Studies | Y | Y | Y | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Loma Linda University
School Address: Nichol Hall, Room 1202, Loma Linda CA 92350
Respondant: George Johnston, (714)824-4918
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Public Health |
| Department | -0- | -0- | Environmental Health |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Masters of Public Health | Y | Y | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Louisiana State University
School Address: 156 T. Boyd Hall, Baton Rouge LA 70803
Respondant: W. Constant, (504)388-6770
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering & Environmental Studies |
| Department | -0- | Civil, Chemical, Mechanical | Civil, Chemical, Mechanical |
| Other Colleges | -0- | Basic Sciences | Basic Sciences |
| Partic. Discip. | Continuing Education | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS Environmental Studies | Y | Y | N | N | ? |
| BS, MS, PhD Civil Engineering | Y | Y | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Louisiana State University - Shreveport
School Address: One University Place, Shreveport LA 71115
Respondant: Jerome Hatcher, (318)797-5141
Hazardous Waste Education Provided: Undergrad., Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | LSU | LSU | -0- |
| Department | Advanced Manufacturing Services | Chemistry | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. (??) Chemistry | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Louisiana Technological University
School Address: PO Box 3168, Tech Station, Ruston LA 71272
Respondant: H. K. Huckaby, (318)257-4647
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Chemical Engineering | Chemical Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Chemical Engineering | Y | N | N | N | -0- |
| MS Chemical Engineering | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Loyola Marymount University
School Address: 7101 W. 80th Street, Los Angeles CA 90045
Respondant: Donald Anderson, (213)642-2823
Hazardous Waste Education Provided: Graduate
HW Program Name: 1 Course in Environmental Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Civil Engineering | N | Y | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Luther College
School Address: , Delorah IA 52101
Respondant: Walden Heino, (319)387-1119
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Part of 1 chemistry class

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Chemisty | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.A. Chemistry | N | Y | N | N | <10 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Maine, University of - Fort Kent
School Address: , Fort Kent ME 04743
Respondant: Dr. Eberhard Theik, (207)834-3162
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Included in Environmental Studies

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Environmental Studies | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Studies | N | Y | N | N | 1% |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Manhattan College
School Address: Manhattan College Parkway, Bronx NY 10471
Respondant: Louis Theodore, (212)920-0185
Hazardous Waste Education Provided: Graduate
HW Program Name: NONE - included in Chemical and Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Chemical & Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Masters - Chemical Engineering | Y | N | N | N | ?? |
| Masters - Civil Engineering | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Massachusetts Institute of Technology
School Address: , Cambridge MA 02139
Respondant: John Ehrenfeld, (617)253-1694
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Hazardous Substances Management Program

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Chemical and Civil | Chemical and Civil |
| Other Colleges | -0- | Urban Studies and Planning | Urban Studies and Planning |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. or B.S. in Chemical or Civil | Y | N | N | N | ? |
| M.S. Community Planning | Y | N | N | N | ? |
| M.S. Technology and Planning | Y | N | N | N | ? |

School Name: McNeese University
School Address: , Lake Charles LA 70609
Respondant: Harold Stevenson, (318)475-5673
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Part of Environmental Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | College of Science | College of Science |
| Department | -0- | Environmental Science | Environmental Science |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Medical College of Ohio
School Address: , Toledo OH 43699-0008
Respondant: Mary Gerken, (419)381-4172
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Medical College |
| Department | -0- | -0- | Industrial Hygiene |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Industrial Hygiene | N | Y | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Mercy College
School Address: 555 Broadway, Dobbs Ferry NY 10522
Respondant: Dr. John Sullivan, (914)693-4500
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Incorporated into existing classes in Occupational Safety and Health

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Michigan State University
School Address: C-231 Holden Hall, East Lansing MI 48824
Respondant: Lawrence Fischer, (517)353-6469
Hazardous Waste Education Provided: graduate
HW Program Name: Environmental Toxicology

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil & Environmental |
| Other Colleges | -0- | -0- | Agriculture, Medicine, & Natural Science |
| Partic. Discip. | -0- | -0- | Many |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| PhD Environmental Toxicology | Y | Y? | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Michigan Technological University
School Address: , Houghton MI 49931
Respondant: C. Robert Baillod, (906)487-2530
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Part of Environmental Engineering (Center for Water and Waste Management)

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil & Environmental | Civil & Environmental |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | ChE, Chem., Biology, Science, Geology | ChE, Chem., Biology, Science, Geology |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S., M.S., or Ph.D. Environmental | ? | ? | ? | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Michigan, University of
School Address: Dept. of Civil Engineering, Ann Arbor MI 48109
Respondant: W. Weber, (313)763-1464
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Part of Environmental Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Engineering | Engineering | Engineering |
| Department | Civil | Civil | Civil |
| Other Colleges | Public Health | Public Health | Public Health |
| Partic. Discip. | Chemistry & Biology | Chemistry & Biology | Chemistry & Biology |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Engineering | Y | N | N | N | ? |
| M.S. Environmental Engineering | Y | Y | Y | N | ? |
| MS or Doctor of Public Health | Y | Y | Y | N | -0- |

School Name: Minnesota, University of
School Address: 420 Delaware St. SE, Minneapolis MN 55455
Respondant: Fay Thompson, (612)626-3676
Hazardous Waste Education Provided: Graduate, Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Educational Resource Center | -0- | School of Public Health |
| Department | -0- | -0- | Division of Env. & Occupational Health |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS Environmental and Occupational Health | Y | N | N | N | -0- |
| MPH | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Minnisota, University of - Diluth
School Address: , Diluth MN 55812-2496
Respondant: Liz Taylor, (218)728-1528
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Liberal Arts |
| Department | -0- | Chemical Engineering | Geology |
| Other Colleges | -0- | -0- | Education |
| Partic. Discip. | -0- | -0- | Safety |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Chemical Engineering | Y | N | N | N | -0- |
| MA Geology | Y | N | N | N | -0- |
| MA Education | Y | N | N | N | -0- |

School Name: Missouri, University of - St. Louis
School Address: 8001 Natural Bridge Road, St. Louis MO 63121
Respondant: James Hickerson, (314)553-6363
Hazardous Waste Education Provided: Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | Continuing Education | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | Agencies | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Montana College of Mineral Science and Technology
School Address: W. Park Street, Butte MT 59701
Respondant: Tom Waring, (406)496-4188
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Environmental | Environmental |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | Public Health | Public Health |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Engineering | Y | Y | N | N | 50 |
| B.S. Occupational Safety and Health | Y | Y | N | N | 60 |
| M.S. Environmental Engineering | Y | N | N | N | 50 |

School Name: New Hampshire College
School Address: 2500 N. River Rd., Manchester NH 03104
Respondant: Peter Troy, (603)668-2211
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Liberal Arts | -0- |
| Department | -0- | Math and Science | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Business | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: New Jersey Institute of Technology
School Address: Dept. of ChE, Chemistry and Envir. Sci., Newark NJ 07102
Respondant: G. Thomas, (201)596-3220
Hazardous Waste Education Provided: Graduate, Non-credit
HW Program Name: Toxics Option of Environmental Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | Continuing Education | -0- | Civil & Environmental, Environ. Science |
| Other Colleges | -0- | -0- | Chemistry, Chemical Engineering |
| Partic. Discip. | -0- | -0- | Inst. of Hazardous & Toxic Waste Manag. |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental Science - Toxics Option | Y | Y | Y | N | 80 |
| M.S. Environmental Engineering | Y | ? | ? | N | ? |
| M.S. Environmental Science | Y | Y | Y | N | 80 |

School Name: North Carolina State University
School Address: , Raleigh NC 27695
Respondant: Michael Overcash, (919)737-2325
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Hazardous Waste Minor In Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Chemical, Mechanical, & Civil | Chemical, Mechanical, & Civil |
| Other Colleges | -0- | University Studies | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS, MS, PhD - Civil Engineering | Y | ? | N | N | ? |
| BS, MS, PhD - Chemical Engineering | Y | ? | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: North Carolina, University of
School Address: Rosenau Hall, Chapel Hill NC 27599
Respondant: Alvis Turner, (919)966-3850
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Public Health |
| Department | -0- | -0- | Environmental Sciences and Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS Public Health | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: North Carolina, University of - Charlotte
School Address: , Charlotte NC 28223
Respondant: Jack Evett, (704)547-2628
Hazardous Waste Education Provided: Graduate
HW Program Name: NONE - elective courses offered in Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Engineer Civil Engineering | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Northeastern Illinois University
School Address: 5500 N. St. Louis, Chicago IL 60611
Respondant: Dorothy Paltn, (312)583-4050
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Part of Earth Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | College of Arts and Sciences | College of Arts and Sciences |
| Department | -0- | Earth Science | Earth Science |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Earth Science | Y | N | N | N | <20 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Northeastern State University
School Address: Highway 82 North, Tzhalequah OK 74464
Respondant: Vernon Isom, (918)456-5511
Hazardous Waste Education Provided: Graduate
HW Program Name: Included in Industrial Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | ?? |
| Department | -0- | -0- | Industry |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Industrial Management | N | N | Y | N | 50 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Northern Colorado, University of
School Address: , Greenley CO 80639
Respondant: James Walker, (303)351-2823
Hazardous Waste Education Provided: Undergrad.
HW Program Name: 1 Chemistry Class

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Chemistry | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Northern Michigan University
School Address: , Marquette MI 49855-5301
Respondant: Dr.Alden, (906)227-2190
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | School of Technology and Applied Science | -0- |
| Department | -0- | Occupational Studies | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Waste Water Treatment | N | Y | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Ohio Northern University
School Address: , Ada OH 45810
Respondant: Dale Wilhelm, (419)772-2033
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Part of Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | -0- |
| Department | -0- | Civil | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Civil Engineering | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Ohio University
School Address: Hudson Health Center, Athens OH 45701
Respondant: Leroy Scribner, (614)593-1666
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Hazardous Materials Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Health & Human Services | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | Continuing Education | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| ?? | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Oklahoma State University
School Address: , Stillwater OK 74078
Respondant: Carol Engle, (405)744-5000
Hazardous Waste Education Provided: Graduate, Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil, Industrial |
| Other Colleges | -0- | -0- | Geology |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental and M.S. & PhD Civil | Y | N | N | N | -0- |
| MS Industrial Engineering | Y | N | N | N | -0- |
| MS & PhD Environmental Sciences | Y | N | N | N | -0- |

School Name: Oklahoma, University of
School Address: 660 Parrington Oval, Norman OK 73019
Respondant: Dr. Larry Cantor, (405)325-5202
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil and Environmental Science |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS and PhD Civil Engineering | Y | N | Y | N | -0- |
| MS and PhD Environmental Science | Y | N | Y | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Oregon State University
School Address: , Corvallis OR 97331-2302
Respondant: Sandra Woods, (503)737-4934
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil Engineering | Civil Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | Environmental Engineering | Environmental Engineering |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Civil Engineering | Y | -0 | -0 | -0 | -0- |
| MS Civil Engineering | Y | -0 | -0 | -0 | -0- |
| PhD Civil Engineering | Y | -0 | Y | -0 | -0- |

School Name: Pennsylvania State University
School Address: ERRI, Land and Water Building, University Park PA 16802
Respondant: R. W. Regan, (814)863-1518
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Included in Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil | Civil |
| Other Colleges | -0- | Agriculture, Earth & Mineral Science | Agriculture, Earth & Mineral Science |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental Engineering | Y | N? | N | Y | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Point Park College
School Address: Blvd. Allies and Wood St., Pittsburg PA 15222
Respondant: , (412)391-4100
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | Natural Science and Engineering Tech. | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Civil Engineering | N | Y | N | N | -0- |
| BS Electrical Engineering | N | Y | N | N | -0- |
| BS Mechanical Engineering | N | Y | N | N | -0- |

School Name: Purdue University
School Address: School of Civil Engineering, West Lafayette IN 47907
Respondant: James Ethel, (317)494-2194
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Included in Environmental Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Engineering | Engineering | Engineering |
| Department | Civil | Civil | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Civil Engineering | Y | Y | N | N | 30 |
| M.S. or Ph.D. Civil Engineering | Y | Y | N | N | 40 |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Ramapo College of New Jersey
School Address: 505 Ramapo Valley Rd., Mahwah NJ 07430
Respondant: Dr. Edward Saiff, (201)529-1274
Hazardous Waste Education Provided: Undergrad., Non-credit
HW Program Name: Part of Environmental Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Ramapo | -0- |
| Department | -0- | School of Science | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Slippery Rock University of Pennsylvania
School Address: , Slippery Rock PA 16057-9989
Respondant: Dr. W. G. Sayre, (412)794-7595
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Natural Science and Math | -0- |
| Department | -0- | Biology, Geology and Chemistry | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Environmental Science | N | Y | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: South Carolina, University of
School Address: Room 311 Health Sciences Building, Columbia SC 29208
Respondant: Liyuan Liang, (803)777-6994
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | School of Public Health |
| Department | -0- | -0- | Environmental Health Science |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MPH (Public Health) | Y | Y | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: South Carolina, University of - Aiken
School Address: 171 University Parkway, Aiken SC ?
Respondant: William Pirkle, (803)648-6851
Hazardous Waste Education Provided: Undergrad.
HW Program Name: ??

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Biology, Geology | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| ????? | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Southern California, University of
School Address: , Los Angeles CA 90089-0021
Respondant: Connie Roque, (213)743-3236
Hazardous Waste Education Provided: Graduate, Non-credit
HW Program Name: Hazardous Waste Management option in Industrial Hygiene and Occupational, Safety and Health

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Institute of Safety & Systems Mngmt |
| Department | -0- | -0- | Safety Science Department |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS Industrial Hygiene | Y | Y | Y | -0 | -0- |
| MS Occupational, Safety and Health | Y | Y | Y | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Southern Main, University of
School Address: 96 Falmouth, Portland ME 04103
Respondant: Samuel Andrews, (207)780-4484
Hazardous Waste Education Provided: Non-credit
HW Program Name: Right-To-Know training for employees only

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Stanford University
School Address: Department of Civil Engineering, Stanford CA 94305
Respondant: Perry McCarty, (415)723-4131
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Part of Environmental Engineering and Science

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil and Environmental |
| Other Colleges | -0- | -0- | Earth Sciences |
| Partic. Discip. | -0- | -0- | Biology, Chemistry, Geohydrology |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental Engineering and Science | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: State University of New York at Buffalo
School Address: Department of Civil Engineering, Buffalo NY 14260
Respondant: Ralph Rumer, (716)636-3446
Hazardous Waste Education Provided: Graduate
HW Program Name: Part of Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | Toxicology, Geology, and Law |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Civil Engineering | Y | N | N | N | ? |
| M.E. Civil Engineering | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: SUNY Empire State College
School Address: One Union Ave., Saratoga Springs NY 12866
Respondant: Margarie Lavin, (518)587-2100
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Labor Studies | Labor Studies |
| Department | -0- | Occupational Health and Safety | Occupational Health and Safety |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Labor Studies with Occupational Health | Y | N | N | N | -0- |
| MA Labor and Policy | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Syracuse University - Main Campus
School Address: , Syracuse NY 13244
Respondant: Engineering Dean's Office, (315)443-1870
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil Engineering |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS Civil Engineering | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Tennessee, University of
School Address: 615 McCallie Ave., Chattanooga TN 37403-2598
Respondant: Richard Gruetzemacher, (615)755-4007
Hazardous Waste Education Provided: Non-credit
HW Program Name: Hazardous/Toxic Waste Management: Laws, Compliance Procedures and New Technologies

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Continuing Education | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Texas A&M University
School Address: Engineering Research Center, College Station TX 77843
Respondant: Carol Erdman, (409)845-1321
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Included in Environmental Engineering, Industrial Hygiene, & Safety Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil & Environmental | Civil, Environmental & Industrial |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. or Ph.D. Environmental Engineering | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Texas Tech University
School Address: Dept. of Chemical Engineering, Lubbock TX 79409
Respondant: Robert Bethea, (806)742-1759
Hazardous Waste Education Provided: Graduate
HW Program Name: 1 course offered in Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. or Ph.D. in any Engineering | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Texas, University of - Arlington
School Address: 800 S. Cooper Street, Arlington TX 76013
Respondant: Bob Perkins, (817)273-2681
Hazardous Waste Education Provided: Graduate
HW Program Name: Certificate in Hazardous Materials Management obtainable by taking core classes and completing a masters degree

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil |
| Other Colleges | -0- | -0- | City & Regional Planning |
| Partic. Discip. | -0- | -0- | Geology, Urban & Regional Affairs |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Interdiciplinary Studies | Y | Y | N | Y | ?? |
| M.S. any of the participating colleges and | Y | N | N | Y | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Texas, University of - Austin
School Address: Cockrell Hall 10.324, Austin TX 78712
Respondant: , (512)471-3506
Hazardous Waste Education Provided: Non-credit
HW Program Name: Non-credit course on clay liners and covers

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Engineering | -0- | -0- |
| Department | Continuing Engineering Studies | -0- | -0 |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Thomas M. Cooley Law School
School Address: P.O. Box 13038, Lansing MI 48901
Respondant: Barb Palmer, (517)371-5140
Hazardous Waste Education Provided: Graduate
HW Program Name: 1 class called environmental law

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Law School |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| Law Degree | Y | N | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Toledo, University of
School Address: , Toledo OH 43606
Respondant: G. Bennett, (419)537-2520
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil | Civil |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. & M.S. Civil Engineering | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Toledo, University of - Community and Technical College
School Address: 2801 W. Bancroft, Toledo OH 43606
Respondant: Roy Stern, (419)537-3132
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | ?? | -0- |
| Department | -0- | ?? | -0- |
| Other Colleges | -0- | Community and Technical College | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S.?? Environmental Control and Protection | ? | ? | N | N | 20% |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Tufts University
School Address: Anderson Hall, Medford MA 02155
Respondant: ??, (615)381-3211
Hazardous Waste Education Provided: Graduate, Non-credit
*HW Program Name: Master's in Hazardous Materials Management*

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering |
| Department | -0- | -0- | Civil |
| Other Colleges | -0- | -0- | Urban and Environmental Policy |
| Partic. Discip. | -0- | -0- | Center for Environmental Management |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Hazardous Materials Management | Y | Y | Y | N | 90 |
| M.S. Civil Engineering | Y | Y? | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Union University
School Address: 2447 Highway 45 Bypass, Jackson TN 38305
Respondant: Charles Baldwin, (901)668-1818
Hazardous Waste Education Provided: Undergrad.
HW Program Name: One class in chemistry

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Union | -0- |
| Department | -0- | Chemistry | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Chemistry | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: University of Pittsburg Applied Research Center
School Address: 320 William Pitt Way, Pittsburg PA 15238
Respondant: Steve Ostheim, (412)826-5320
Hazardous Waste Education Provided: Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Center for Hazardous Materials Research | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Utah State University
School Address: UMC-4110, Logan UT 84110
Respondant: R. R. Dupont, (801)750-3227
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Environmental Engineering Hazardous Waste Management Program

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil & Environmental | Civil & Environmental |
| Other Colleges | -0- | Science | Science |
| Partic. Discip. | -0- | Toxicology, Chemistry, Biology | Toxicology, Chemistry, Biology, Soils |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. Environmental Engineering | N | Y | N | N | 50+ |
| M.S., PhD. Envir. Engineering w/ Hazardous | N | Y | Y | N | 50+ |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Vanderbilt University
School Address: Box 133, Station B, Nashville TN 37235
Respondant: Edward Thackston, (615)322-2697
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: Included in Environmental and Water Resource Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil & Environmental | Civil & Environmental |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | Chemistry, Chemical Engineering |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Civil Engineering | Y | N? | N | N | ?? |
| M.S. Environmental Engineering | Y? | N? | Y | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Virginia Polytechnic Institute and State University
School Address: , Blacksburg VA 24061
Respondant: G.D Boardman, John Cairns, (703)231-6020
Hazardous Waste Education Provided: Graduate, Undergrad.
HW Program Name: 2 Courses included in Civil Engineering

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil | Civil |
| Other Colleges | -0- | Environmental Design & Planning | Environmental Design & Planning |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Civil Engineering | Y | N | N | N | ?? |
| M.S. Civil Engineering | Y | N | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Washington, University of
School Address: Dept. of Environmental Health, SC34, Seattle WA 98195
Respondant: Jack Hatlen, (206)543-4252
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | School of Public Health | School of Public Health |
| Department | -0- | Environmental Health | Environmental Health |
| Other Colleges | -0- | ?? | ?? |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS and BS Environmental Health | N | Y | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Wayne State University
School Address: Dept. of Chemical & Metallurgical Eng'g., Detroit MI 48202
Respondant: Dr. R. Kummler, (313)577-3800
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Master's Degree and Certificate Program in Hazardous Waste Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Chemical & Civil | Chemical & Civil |
| Other Colleges | -0- | Allied Health & Liberal Arts | Allied Health & Liberal Arts |
| Partic. Discip. | -0- | Law, OEH, BIO, CE, ChE | Law, OEH, BIO, CE, ChE |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS, MS, PhD Chemical or Civil Engineering | Y | N | N | N | ? |
| M.S. in Hazardous Waste Management | Y | Y | N | N | 100 |
| Graduate Certificate in Hazardous Waste | Y | Y | N | Y | 100 |

School Name: Western Kentucky University
School Address: , Bowling Green KY 42101
Respondant: David Deven, (502)745-4797
Hazardous Waste Education Provided: Undergrad.
HW Program Name: One 3hr. course in Hazadrous Waste Control

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Occupational Safety & Health | -0- |
| Department | -0- | Health & Safety | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| A.S. Occupational Safety and Health | N | Y | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | 0- |

School Name: Western Michigan University
School Address: College of Engineering & Applied Science, Kalamazoo MI 49008
Respondant: George Dennison, (616)387-23[illegible]
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Part of existing programs

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering & Applied Science | -0- |
| Department | -0- | Paper & Printing Science | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | Industrial Engineering | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S.(?) Paper Engineering | N | Y | N | N | ?? |
| B.S. Industrial Engineering | Y | N | N | N | ?? |
| B.S.(?) Manufacturing Engineering | N | Y | N | N | ?? |

School Name: Wisconsin, University of - Green Bay
School Address: 2420 Nicolet Drive, Green Bay Wi 54311
Respondant: James Wiersma, (414)465-2280
Hazardous Waste Education Provided: Graduate, Non-credit
HW Program Name: ??

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | Chemistry, Biology |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| M.S. (?? no discipline given) | Y | N | N | N | <10 |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Wisconsin, University of - Madison
School Address: Bascom Hall, 500 Lincoln Drive, Madison WI 53706
Respondant: Nancy Lindsay, (608)262-1304
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Part of existing programs

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Engineering | Engineering |
| Department | -0- | Civil & Environmental | Civil & Environmental |
| Other Colleges | -0- | Environmental Toxicology | Environmental Toxicology |
| Partic. Discip. | -0- | Soils, Pre. Med., Phmcol., Zoology | Soils, Pre. Med., Phmcol., Zoology |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS, MS, or PhD Civil or Environmental | Y | ? | N | N | ?; |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Wisconsin, University of - Milwaukee
School Address: Environ. Health & Safety, P.O. Box 413, Milwaukee WI 53201
Respondant: Dr. John Krezoski, (414)229-6339
Hazardous Waste Education Provided: Non-credit
HW Program Name: ??

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | Division of Administrative Affiars | -0- | -0- |
| Department | Environmental Health and Safety | -0- | -0- |
| Other Colleges | N/A | -0- | -0- |
| Partic. Discip. | N/A | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Wisconsin, University of- Whitewater
School Address: 800 West Main Street, Whitewater Wi 53190
Respondant: Vay Rodman, (414)472-5427
Hazardous Waste Education Provided: Graduate, Undergrad., Non-credit
HW Program Name: Part of Occupational Safety

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Education | Education |
| Department | -0- | Safety Studies | Safety Studies |
| Other Colleges | -0- | Letters & Science | Letters & Science |
| Partic. Discip. | -0- | Chemistry | Chemistry |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Occupational Safety | Y | Y | N | N | ?? |
| M.S. Safety Studies | Y | Y | N | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Worchester Polytechnic Institute
School Address: 100 Institute Rd., Worchester MA 01609
Respondant: David Messier, (508)831-5216
Hazardous Waste Education Provided: Graduate
HW Program Name: Hazardous Waste Management

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | Engineering?? |
| Department | -0- | -0- | Chemical?? |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MS(??) Hazardous Waste Management(??) | Y | N | Y | N | ?? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Wright State University - Main Campus
School Address: Colonel Glenn Highway, Dayton OH 45435
Respondant: A. Burton, (513)873-3333
Hazardous Waste Education Provided: Undergrad.
HW Program Name: Environmental Health

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Biological Science | -0- |
| Department | -0- | Environmental Health Science | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| BS Environmental Health Science | N | Y | N | N | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: Yale School of Medicine
School Address: 60 College Street, PO Box 3333, New Haven CT 06510
Respondant: Eric Mood, (203)785-2877
Hazardous Waste Education Provided: Graduate
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | -0- | School of Public Health |
| Department | -0- | -0- | Epidemiology and Public Health |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | Environmental Health |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| MPH Public Health | Y | N | N | N | ? |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

School Name: York College of the City University of New York
School Address: Environmental Health Science, Jamaica NY 11451
Respondant: P.C. Lu, (718)262-2720
Hazardous Waste Education Provided: Undergrad.
HW Program Name: -0-

| Participants | Non-credit | Undergraduate | Graduate |
|---|---|---|---|
| College | -0- | Environmental Health Science | -0- |
| Department | -0- | -0- | -0- |
| Other Colleges | -0- | -0- | -0- |
| Partic. Discip. | -0- | -0- | -0- |

| Degree Name | Elective | Required | Option | Certificate | Percent Hazardous Waste |
|---|---|---|---|---|---|
| B.S. Environmental Health Science | Y | Y | N | N | 33% |
| -0- | -0 | -0 | -0 | -0 | -0- |
| -0- | -0 | -0 | -0 | -0 | -0- |

# REPORT II

## INFORMATION ON UNIVERSITY PROGRAMS AND CREDIT COURSE WORK IN HAZARDOUS WASTE - ENROLLMENT AND GRADUATION RATES

arranged alphabetically by university

HAZARDOUS WASTE EDUCATION: UNIVERSITY SURVEY 2
HAZARDOUS WASTE PROGRAMS

School Name: Boise State University
School Address:Dept. of Community and Environmental Health, 1910 University Dr., Boise, ID 83725
Name of Hazardous Waste Program: NONE - Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Boston University School of Public Health
School Address:80 E. Concord Street, Boston, MA 02118
Name of Hazardous Waste Program: No program - included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

1

School Name: Bowling Green State University
School Address:102 Health Center, Bowling Green , OH 43403
Name of Hazardous Waste Program: NONE - Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: California Polytechnic State University
School Address:San Luis Obispo, CA 93407
Name of Hazardous Waste Program: Noncredit classes & individual classes in Envir. Engin.
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | ?? | ?? |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | ?? | ?? |
| Present Enrollment | -0- | -0- | -0- | -0- | ?? | ?? |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | 2 | -0- |

School Name: California State University - Fresno
School Address:Fresno, CA 93740
Name of Hazardous Waste Program: NONE - Included in Civil Engin. and Health & Social Wrk
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: California State University - Long Beach
School Address:1250 Bellflower Blvd., Long Beach, CA 90840
Name of Hazardous Waste Program: Environmental Auditing
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | 1989 |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | ?? | -0- | -0- | ?? |

3

School Name: California State University - Northridge
School Address:18111 Nordhoff St., Northridge, CA 91330
Name of Hazardous Waste Program: NONE - Included in Environmental & Occupational Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: California, University of - Berkeley
School Address:Berkeley, CA 94702
Name of Hazardous Waste Program: NONE - Included in Engineering & Public Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

4

School Name: California, University of - Davis
School Address:Toxic and Hazardous Substances Program, University Extension, Davis, CA 95616
Name of Hazardous Waste Program: Noncredit Certificate Program in HW Management
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | 1-83 | -0- | 1-83 ? |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | 1200 | -0- | ? |
| Present Enrollment | -0- | -0- | -0- | 130 | -0- | ? |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | ? | -0- | -0- |

School Name: Cincinnati, University of - College of Engineering
School Address:Dept. of Civil and Environmental Engineering, Cincinnati, OH
Name of Hazardous Waste Program: NONE - Included in Civil & Environmental Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Clarkson University
School Address:Potsdam, NY 13676
Name of Hazardous Waste Program: Option in Civil and Environmental Engineering
Accredited HW Program? N? Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | ? | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | ? | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | ? | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | ? | -0- | -0- | -0- |

School Name: Cornell University
School Address:Ithaca, New York
Name of Hazardous Waste Program: NONE - Included in Civil & Environmental Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

6

School Name: Dayt- University of
School Address:300 College Park, Dayton, OH 45469
Name of Hazardous Waste Program: Included in School of Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | 15 | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | 3 | 3 | -0- | -0- | -0- |

School Name: DePaul University
School Address:25 East Jackson Blvd., Chicago, IL 60604-2287
Name of Hazardous Waste Program: Included in Chemistry
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | 4 | 4 | -0- | -0- | -0- |

7

School Name: Drexel University
School Address:32nd and Chestnut, Philadelphia, PA 19104
Name of Hazardous Waste Program: No program - included in engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Duke University
School Address:?
Name of Hazardous Waste Program: NONE?
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

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School Name: East Carolina University
School Address:Dept. of Environmental Health, Greenville, NC 27858
Name of Hazardous Waste Program: No formal program - offered in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: East Carolina University
School Address:Greenville, NC 27858
Name of Hazardous Waste Program: NONE - Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: East Tennessee State University
School Address:Box 22960A, Johnson City, TN 37614
Name of Hazardous Waste Program: Hazardous Materials Option is under development
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Eastern Kentucky University, Dept. of Environmental Health Sci.
School Address:Richmond, KY 40475
Name of Hazardous Waste Program: NONE - Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Edinboro University
School Address:Edinboro, PA 16444
Name of Hazardous Waste Program: NONE - included in Fire Protection
Accredited HW Program? N  Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | ?? | ?? | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | ?? | ?? | -0- |
| Present Enrollment | -0- | -0- | -0- | ?? | ?? | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | ?? | ?? | -0- |

School Name: Ferris State University
School Address:901 South State, Big Rapids, MI 49307
Name of Hazardous Waste Program: Hazardous Waste Management Option
Accredited HW Program? Y  Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | 1985 | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | ? | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | ? | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | 30? | -0- | -0- | -0- |

School Name: Findlay College
School Address:1000 North Main Street, Findlay OH 45840
Name of Hazardous Waste Program: B.S. and A.S. in Hazardous Waste Studies
Accredited HW Program? N  Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | 9-88 | -0- | 9-88 | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | ? | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | ? | -0- | -0- |
| Present Enrollment | -0- | ? | -0- | ? | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | 11 | -0- | -0- | -0- | -0- |

School Name: Florida, University of - Environmental Engineering Sciences
School Address:Black Hall, Gainesville, FL 32611
Name of Hazardous Waste Program: NONE - included in Environmental Engineering
*Accredited HW Program?* -0  *Accrediting Body:* -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | ?? | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | ?? | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | ?? | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | 5 | -0- |

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School Name: Georgia Institute of Technology - School of Civil Engineering
School Address:Atlanta, GA 30332
Name of Hazardous Waste Program: NONE - Included in Environmental Engineering
Accredited HW Program? Accrediting Body:

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 1978 | -0- | -0- | -0- | -0- | 1984 |
| Cumulative # of Graduates By June, 1989 | 100 | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | 23,563 |
| Present Enrollment | 40 | -0- | -0- | -0- | -0- | 6463 |
| Total # of Semester Hours Offered In HW Education | 40 | -0- | -0- | -0- | -0- | -0- |

School Name: Georgia State University
School Address:University Plaza, Atlanta, GA 30303
Name of Hazardous Waste Program: 40 Hr. Radiological Safety Training Course
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | ?? |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | 50 |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | 0 |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | NA |

School Name: Hampshire College - School of Natural Science
School Address:Amherst, MA 01002
Name of Hazardous Waste Program: NONE - Electives in Natural Science (ungrad. & noncred)
Accredited HW Program? N  Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | 1-89 | 1-89 |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | 10 | 10 |
| Present Enrollment | -0- | -0- | -0- | -0- | NA | NA |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | 3 | 3 |

School Name: Hawaii, University of - School of Public Health
School Address:1960 East-West Road, Honolulu, HI 96822
Name of Hazardous Waste Program: NONE - Some electives in Public Health
Accredited HW Program? -0  Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

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School Name: Houston, University of - Clear Lake
School Address:2700 Bass Area Blvd., Houston, TX 77058
Name of Hazardous Waste Program: NONE - Included in Environmental Management
Accredited HW Program? Y  Accrediting Body: NASPAA

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | S-1987 | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | ?? |
| Present Enrollment | -0- | -0- | -0- | -0- | 26 | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | 3 | -0- |

School Name: Howard University - Dept. of Civil Engineering
School Address:Washington D.C., 20059
Name of Hazardous Waste Program: Graduate Option in Solid and Hazardous Waste Management
Accredited HW Program? ?  Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | ? | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | ? | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | ? | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Idaho State
School Address:Pocatello, ID 83209-0009
Name of Hazardous Waste Program: Included in Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | 30 | -0- | 30 | -0- | -0- | -0- |

School Name: Idaho, University of
School Address:Idaho Falls Center, Box 778, Idaho Falls, ID 83402
Name of Hazardous Waste Program: Industrial Technology - Waste Management
Accredited HW Program? Y Accrediting Body: Northwest

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | 1988 | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | 0 | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | 20 | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | 30 | -0- | -0- | -0- | -0- |

School Name: Illinois Institute of Technology
School Address:IIT Center, Chicago, IL 60616
Name of Hazardous Waste Program: Hazardous Waste Management Option of Envir. Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | ? | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | ? | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | ? | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | ? | -0- | -0- | -0- |

School Name: Illinois State University - School of Applied Science & Tech.
School Address:Normal, IL 61761
Name of Hazardous Waste Program: NONE - Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Illinois, University of - Urbana-Champaign
School Address:Environmental Health & Safety, 202 Agricultural Bldg., 1208 W. Peabody, Urbana, IL 61801
Name of Hazardous Waste Program: Emphasis in Civil Engineering & some short courses
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | ?? | -0- | -0- | -0- | 1988 | -0- |
| Cumulative # of Graduates By June, 1989 | ?? | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | ?? |
| Present Enrollment | ?? | -0- | -0- | -0- | -0- | ?? |
| Total # of Semester Hours Offered In HW Education | 3+ | -0- | -0- | -0- | -0- | -0- |

School Name: Indiana State University
School Address:Dept. of Health and Safety, Terre Haute, IN 47809
Name of Hazardous Waste Program: NONE - included in Envir. Health and Safety Management
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | ?? | 1988 |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | ?? | 20 |
| Present Enrollment | -0- | -0- | -0- | -0- | ?? | NA |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | ?? | NA |

School Name: Indiana University
School Address:Bloomington, IN 47405
Name of Hazardous Waste Program: NONE - Included in Environmental Science
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Kansas State University - Dept. of Chemical Engineering
School Address:Manhattan, KS 66506
Name of Hazardous Waste Program: NONE - Included in Chemical Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Lamar University
School Address:4400 M. L. King, Beaumont, TX 77710
Name of Hazardous Waste Program: NONE - Included in Environmental Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Loma Linda University - School of Public Health
School Address:Nichol Hall, Rm. 1202, Loma Linda, CA 92350
Name of Hazardous Waste Program: NONE - Included in Public Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Louisiana State University
School Address:156 T. Boyd Hall, Baton Rouge, LA 70803
Name of Hazardous Waste Program: NONE - Included in Civil Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Louisiana State University - Shreveport
School Address:One University Place, Shreveport, LA 71115
Name of Hazardous Waste Program: Short courses (Waste Minimization)
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | 1987 |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | 480 |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | 160/yr |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

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School Name: Massachusetts Institute of Technology
School Address:Cambridge, MA 02139
Name of Hazardous Waste Program: Hazardous Substances Management??? no further info.
Accredited HW Program? NO Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: McNeese State University
School Address:Lake Charles, LA 70609
Name of Hazardous Waste Program: No formal Program - offered in Environmental Science
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

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School Name: Medical College of Ohio
School Address:Toledo, OH 43699-0008
Name of Hazardous Waste Program: Included in industrial hygiene
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 1985 | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | 19 | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | 2 | -0- | 2 | -0- | -0- | -0- |

School Name: Michigan State University - Center for Envir. Toxicology
School Address:C-231 Holden Hall, East Lansing, MI 48824
Name of Hazardous Waste Program: Environmental Toxicology ??
Accredited HW Program? N? Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 1978 | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | 10 | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | 5 | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | ?? | -0- | -0- | -0- | -0- | -0- |

School Name: Michigan, University of - School of Public Health
School Address: 109 S. Observatory, Ann Arbor, MI 48109
Name of Hazardous Waste Program: Option in Public Health and Environmental Engineering
Accredited HW Program? N  Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 1984 | -0- | -0- | -0- | 1970 | 1970 |
| Cumulative # of Graduates By June, 1989 | 6? | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | 6? | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | 36 | -0- | -0- | -0- | -0- | -0- |

School Name: Missouri, University of - St Louis
School Address: 8001 Natural Bridge Rd., St. Louis, MO 63121
Name of Hazardous Waste Program: 14 Noncredit Courses
Accredited HW Program? N  Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | 1980 |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | 900 |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | ?? |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Montana College of Mineral Science & Technology
School Address:W. Park Street, Butte, MT 59701
Name of Hazardous Waste Program: No program - included in Environmental Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: New Jersey Institute of Technology
School Address:Newark College og Engineering, Division of Environmental Science, Newark, NJ 07102
Name of Hazardous Waste Program: Envir. Science Graduate Toxics Option
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 1989 | -0- | -0- | -0- | -0- | 1989?? |
| Cumulative # of Graduates By June, 1989 | ? | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | ? |
| Present Enrollment | ? | -0- | -0- | -0- | -0- | ? |
| Total # of Semester Hours Offered In HW Education | 80% | -0- | -0- | -0- | -0- | -0- |

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School Name: North Carolina State University
School Address:Raleigh, NC 27695
Name of Hazardous Waste Program: NONE - Included in Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: North Carolina, University of - Charlotte
School Address:Charlotte, NC 28223
Name of Hazardous Waste Program: NONE - electives in Civil Engineering
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | 1988 | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | 0 | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | 5 | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | 6 | -0- |

School Name: North Carolina, University of - School of Public Health
School Address:Rosenau Hall, Chapel Hill, NC 27599
Name of Hazardous Waste Program: NONE - Included in Public Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Northeastern Illinois University
School Address:5500 N St. Louis, Chicago, IL 60611
Name of Hazardous Waste Program: NONE - electives in Earth Science are part HW
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

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School Name: Northern Michigan University
School Address:Marquette, MI 49855-5301
Name of Hazardous Waste Program: Included in School of Technology and Applied Sciences
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | pre 1980 | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | 22 | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Northwestern University - Dept. of Environmental Engineering
School Address:2145 Sheridan Road, Evanston, IL 60208
Name of Hazardous Waste Program: NONE - Included in Civil and Environmental Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Ohio Northern University
School Address:Ada, OH 45810
Name of Hazardous Waste Program: NONE - Included in Civil Engineering
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | ?? | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | ?? | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | 10 | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | 2 |

School Name: Ohio University
School Address:Hudson Health Center, Athens, OH 45701
Name of Hazardous Waste Program: NONE - 1 course in Health & Human Services
Accredited HW Program? Y Accrediting Body: Hazardous Materials Institute, Rockville, MD

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | 1-89 | 1-89 |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | 4 | 1 |
| Present Enrollment | -0- | -0- | -0- | -0- | ?? | ?? |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | 2.7 | 2.7 |

School Name: Oklahoma State University
School Address:OSU Engineering Extension, 512 EN, Stillwater, OK 74078
Name of Hazardous Waste Program: Certification Program in Hazardous Materials Management
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Pennsylvania State University
School Address:Land and Water Research Building, University Park, PA 16802
Name of Hazardous Waste Program: HW Option in Environmental Engineering
Accredited HW Program? N? Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | ? | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | ? | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | ? | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | ? | -0- | -0- | -0- |

School Name: Purdue University - School of Civil Engineering
School Address:West Lafayette, IN 47907
Name of Hazardous Waste Program: Some noncredit courses
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | 1986 |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | 275 |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | 60 |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Slippery Rock University of Pennsylvania
School Address:Slippery Rock, PA 16057-9989
Name of Hazardous Waste Program: Included in Natural Science and Math
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | 1972 | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | 100's | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | 50 | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | 26 | 26 | -0- | -0- | -0- |

School Name: South Carolina, University of - Dept. of Envir. Health Science
School Address:Rm. 311 Health Science Bldg., Columbia, SC 29208
Name of Hazardous Waste Program: NONE - Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Stanford University - Dept. of Civil Engineering
School Address:Stanford, CA 94305
Name of Hazardous Waste Program: NONE - Included in Environmental Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: State University of New York - Dept. of Civil Engineering
School Address:Buffalo, NY 14260
Name of Hazardous Waste Program: NONE - Included in Civil Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Tennessee, University of
School Address:University of Tennessee, 615 McCallie Ave., Chattanooga, TN 37403-2598
Name of Hazardous Waste Program: Hazardous/Toxic Waste Manag.: Laws, Compliance Procedur
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | ?? |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | 20 |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | ?? |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | ?? |

School Name: Texas, University of - Arlington
School Address:800 S. Cooper Street, Arlington, TX 76019
Name of Hazardous Waste Program: Graduate Certificate in Hazardous Materials Management
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 9-1988 | -0- | -0- | 1988 | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | 0?? | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | ?? | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | ?? | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | 15? | -0- | -0- |

School Name: Toledo, University of
School Address:Toledo, OH 43606
Name of Hazardous Waste Program: NONE - Included in Civil Engineering
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

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School Name: Tufts University
School Address:Dept. of Civil Engineering, Anderson Hall, Medford, MA 02155
Name of Hazardous Waste Program: M.S. Hazardous Material Management
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 9-1898 | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | 0 | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | 0 | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | 27? | -0- | -0- | -0- | -0- | -0- |

School Name: Tufts University
School Address:474 Boston Ave., Curtis Hall, Medford, MA 02155
Name of Hazardous Waste Program: Hazardous Materials Graduate Option in Civil Engin.
Accredited HW Program? ? Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | 1989?? | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | ? | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | ? | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | ? | -0- | -0- | -0- |

School Name: Utah State University
School Address:Civil & Environmental Engineering, UMC-4110, Logan, UT 84322-4110
Name of Hazardous Waste Program: Environmental Engineering w/ Hazardous Waste Emphasis
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 1983 | 1986 | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | 20 | 4 | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | 20 | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | 14 | 4 | -0- | -0- | -0- | -0- |

School Name: Washington, University of - School of Public Health
School Address:Dept. of Environmental Health, SC 34, Seattle, WA 98195
Name of Hazardous Waste Program: NONE - Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: Wayne State University - College of Engineering
School Address:Detroit, MI 48202
Name of Hazardous Waste Program: Hazardous Waste Management
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | 9-89 | -0- | -0- | 9-86 | 9-84 | -0- |
| Cumulative # of Graduates By June, 1989 | 0 | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | 240 | 280 | -0- |
| Present Enrollment | 0 | -0- | -0- | 140 | 140 | -0- |
| Total # of Semester Hours Offered In HW Education | 0 | -0- | -0- | 13 | 50 | -0- |

School Name: Wayne State University - College of Engineering
School Address:Dept. of Chemical Engineering, Detroit, MI 48202
Name of Hazardous Waste Program: Graduate Certificate in Hazardous Waste Management
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | ? | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | ? | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | ? | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | 13 | -0- | -0- |

School Name: Western Michigan University
School Address:College of Engineering & Applied Sciences, Kalamazoo, MI 49008
Name of Hazardous Waste Program: NONE - courses in Paper & Industrial Engineering
Accredited HW Program? ? Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | 1975 | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | ?? |
| Present Enrollment | -0- | -0- | -0- | -0- | ?? | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | 18 | -0- |

School Name: Wisconsin, University of - Madison
School Address:Bascom Hall, 500 Lincoln Drive, Madison, WI 53706
Name of Hazardous Waste Program: Electives in Civil Eng., Toxicology - Noncredit classes
Accredited HW Program? N Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | | -0- | -0- | -0- | ? | ? |
| Cumulative # of Graduates By June, 1989 | | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | ? | ? |
| Present Enrollment | | -0- | -0- | -0- | ? | ? |
| Total # of Semester Hours Offered In HW Education | | -0- | -0- | -0- | ? | ? |

School Name: Wisconsin, University of - Whitewater
School Address:800 W. Main Street, Whitewater, WI 53190
Name of Hazardous Waste Program: NONE - included in Occupational Safety
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | | | -0- | -0- | ? | ? |
| Cumulative # of Graduates By June, 1989 | | | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | ? | ? |
| Present Enrollment | | | -0- | -0- | ? | ? |
| Total # of Semester Hours Offered In HW Education | | | -0- | -0- | ? | ? |

School Name: Wright State University - Main Campus
School Address:Colonel Glenn Highway, Dayton, OH 45435
Name of Hazardous Waste Program: Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | 1.5 | 1.5 | -0- | -0- | -0- |

School Name: Yale - School of Medicine
School Address:60 College Street, P.O. Box 3333, New Haven, CT 06510
Name of Hazardous Waste Program: NONE - Included in Public Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

School Name: York College of the City University of New York
School Address:Environmental Health Science, Jamaica, NY 11451
Name of Hazardous Waste Program: NONE - Included in Environmental Health
Accredited HW Program? -0 Accrediting Body: -0-

| Hazardous Waste Programs | Graduate Credit | Undergraduate Credit | Option | Certificate | Indiv. Credit Courses | Non-credit Courses |
|---|---|---|---|---|---|---|
| Programs Inception Date | -0- | -0- | -0- | -0- | -0- | -0- |
| Cumulative # of Graduates By June, 1989 | -0- | -0- | --- | --- | --- | --- |
| # of Non-Degree Attendees By June 1989 | --- | --- | -0- | -0- | -0- | -0- |
| Present Enrollment | -0- | -0- | -0- | -0- | -0- | -0- |
| Total # of Semester Hours Offered In HW Education | -0- | -0- | -0- | -0- | -0- | -0- |

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SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Adams State College

Adelphi University

Adrian College

Alabama A & M University

Alabama, University of - Huntsville

Alaska Pacific University

Alaska, University of - Anchorage

Albany State College

Alberson - Broaddus College

Albertus Magnus College

Albion College

Alcorn State University

Alfred Adler Institute of Chicago

Alma College

Alvernia College

Alverno College

Amber University

American International College

American Technological University

Anderson University

Andrews University

Angelo State University

Anna Maria College

Antillian College

Appalachian State University

Arkansas College

Arkansas State University - Main Campus

Arkansas Technological University

## SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Arkansas, University of

[redacted]rmstrong State College

Assumption College

Athenaeum of Ohio

Atlantic Union College

Auburn University at Montgomery

Augsburg College

Augustana College

Aurora University

Avila College

Babson College

Baldwin - Wallace College

Baltimore, University of

Barber-Scotia College

[redacted]arry University

Bayamon Central University

Beaver College

Belhaven College

Beloit College

Bennett College

Bennington College

Berea College

Bethany College

Bethune Cookman College

Black Hills State College

Bloomsburg University of Pennsylvania

Blue Mountain College

[redacted]b Jones University

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Borromeo College of Ohio

Boston College

Bowdoin College

Bowie State University

Brandeis University

Brenau College

Bridgeport, University of

Bridgewater College

Bridgewater State College

Buena Vista Collage

Butler University

Cabrini College

Caldwell College

California Luthern University

California Maritime Academy

California State University - Dominguez Hills

California State University - Los Angeles

California State University - Sacramento

California University of Pennsylvania

Calvin College

Cambridge College

Campbell University

Campbellsville College

Capital University

Cardinal Stritch College

Carleton College

Carroll College

Carson - Newman College

## SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Castletown State College

Catawba College

Catholic University of Puerto Rico

Cayey University College

Cedarville College

Centenary College of Louisiana

Central Connecticut State University

Central Missouri State University

Central State University

Central Washington University

Chadron State College

Chaflin College

Chatham College

Chicago State University

Christ College - Irvine

City University

Claremont Graduate School

Clark University

Cleary College

Clinch Valley College

Coe College

Colby College

Colby-Sawyer College

Colgate University

College for Developmental Studies

College of Mount St. Joseph

College of Notre Dame

College of St. Mary

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Colorado Christian College

Colorado College

Columbia College

Columbia College

Concondia College

Concordia College

Concordia College of Wisconsin

Concordia Luthern College

Connecticut College

Cornell College

Creighton University

Daemen College

Dakota State College

Dakota Wesleyan University

Dallas Baptist University

Dallas, University of

Daniel Webster College

Dartmouth College

David and Elkins College

David Lipscomb College

Davidson College

Defiance College

Delaware State College

Delta State University

Denison University

DePauw University

DeVry Institute of Technology

DeVry Institute of Technology

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

DeVry Institute of Technology

Dickinson State University

Dillard University

Doane College

Dominican College

Dordt College

Dowling College

Dr. Martin Luther College

Drury College

Dubuque-College of Liberal Arts, University of

Duquesne University

Dyke College

Earlham College

East Texas State University

Eastern Connecticut State University

Eastern Mennonite College

Eastern Michigan University

Eastern New Mexico University

Eastern Oregon State College

Eckerd College

Edward Waters College

Elizabeth City State University

Elmhurst College

Embry-Riddle Aeronautical University

Eporia State University

Evangel College

Fayetteville State University

Felician College

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Ferrum College

Flagler College

Florida International University

Florida Southern College

Fontbonne College

Fordham University

Fort Hays State University

Fort Lauderdale College

Fort Lewis College

Fort Valley State College

Franciscan University of Steubenville

Franklin and Marshall College

Franklin Pierce College

Franklin University

Freed-Hardeman College

Friends World College

Gallaudet University

Gallaudet University

Gannon University

Gardner - Webb College

Geneva College

George Mason University

George Washington University

Georgia Southern College

Georgia Southwestern College

Georgia, University of

Georgian Court College

Gettysburg College

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Glassboro State College

Goldey Beacom College

Goshen College

Governors State University

Grambling State University

Grand View College

Green Mountian College

Greensboro College

Guam, University of

Guilford College

Gustavus Adolphus College

Hahnemann University

Hamilton College

Hampden- Sydney College

Hardin-Simmons University

Harding University

Hartford, University of

Haverford College

Heidelberg College

Hendrix College

Henerson State University

Hillsdale College

Hobart and William Smith College

Hofstra University

Holy Names College

Hood College

Hope College

Houghton College

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Houston Baptist University

Houston, University of - Victoria

Huntington College

Huston-Tillotson College

Immaculate College

Indiana Institute of Technology

Indiana University at Kokomo

Indiana University at South Bend

Indiana University of Pennsylvania

Indiana University-Northwest

Iowa Wesleyan College

Ithaca College

Jacksonville State University

Jarvis Christian College

John Brown University

John Carroll University

John Hopkins University

John Wesley College

Jones College

Jordan College/ Energy Institute

Juniata College

Kalamazoo College

Kansas Western University

Kansas-Main Campus, University of

Kearney State College

Keller Graduate School of Management

Kendall College

Kent State University - Main Campus

## SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Keuka College

Knox College

Kutztown University of Pennsylvania

Lafayette College

Lake Forest College

Lake Superior State

Lakeland College

Lander College

Lane College

Langston University

Lawrence University

Lebanon Valley College

Lee College

Lehman College (CUNY)

LeMoyne College

Lenoir-Rhyne College

Letourneau College

Lewis and Clark College

Lewis University

Lewis-Clark State College

Liberty University

Limestone College

Linfield College

Livingston University

Loras College

Louisana College

Lubbock Christian University

Lycoming College

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Lynchburg College

Lyndon State College

MacAlester College

Madonna College

Maine at Machias, University of

Maine at Orono, University of

Maine, University of - Presque Isle

Malone College

Manhattanville College

Mansfield University of Pennsylvania

Marian College of Fond DuLac

Marlboro College

Marquette University

Mars Hill College

Martin Center College

Mary Mount College

Mary, University of

Marygrove College

Maryville College

Marywood College

Massachusetts, University of

Massachusetts, University of - Medical School

Mayville State University

McPherson College

Medaille College

Medical College of Hampton Roads/ Eastern Virginia Medical School

Memphis State University

Mercer University - School of Pharmacy

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Mercy College of Detroit

Mercyhurst College

Merrimack College

Messiah College

Methodist College

Metropolitan State University

Miami, University of

Michigan, University of - Dearborn

Middle Tennessee State University

Middlebury College

Miles College

Minnesota, University of - Morris

Mississippi College

Mississippi, University of

Missouri Southern State College

Missouri Western State College

Missouri-Columbia, University of

Missouri-Kansas City, University of

Mobile College

Monmouth College

Montana, University of

Montevallo, University of

Moorhead State University

Moravian College

Morehead State University

Morehouse College

Morgan State University

Mount Holyoke College

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Mount Mercy College

Mount Saint Clare College

Mount Saint Mary's Collage

Mount Senario College

Mount Union College

Mount Vernon Nazarene College

Mt. Sinai School of Medicine

Muskingam College

NAES College

Naropa Institute

National College

National College of Education

Nebraska Wesleyan University

Nebraska, University of

Nevada - Las Vegas, University of

New England, University of

New York University

Newberry College

Niagara University

Norfolk State University

North Adams State College

North Carolina - Wilmington University of

North Carolina A&T State University - School of Engineering

North Carolina Central University

North Carolina Wesleyan College

North Central College

North Dakota State University

North Florida, University of

Northeast Missouri State University

Northeastern Ohio University - College of Medicine

Northeastern University

Northern Arizona University

Northern Illinois University

Northwest Missouri State University

Northwestern College

Northwestern College

Northwood Institute

Norwich University

Oakland City College

Oberlin College

Oglethorpe University

Ohio State University

Ohio State University - Lima

Ohio Wesleyan University

Oklahoma Baptist University

Olivet College

Oregon Health Sciences University

Orlando College

Ottawa University

Otterbein College

Our Lady of the Holy Cross College

Our Lady of the Lake University

Pace University

Pacific University

Pan American University

Park College

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Parks College of Saint Louis University

Patton College

Peabody Institute John Hopkins University

Peru State College

Piedmont College

Pine Manor College

Pittsburg State University

Pittsburg, University of - Johnstown

Pittsburgh Bradford, University of

Pomona College

Ponce School of Medicine

Portland, University of

Princeton University

Puerto Rico, University of - Medical Sciences Campus

Puerto Rico, University of - School of Public Health

Purdue University - North Central Campus

Quincy College

Quinnipiac College

Radford University

Reed College

Regis College

Rhode Island College

Rhode Island, University of

Richmond, University of

Rider College

Rio Grande, University of

Ripon College

Rivier College

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Robert Morris College

Roberts Wesleyan College

Rockford College

Rocky Mountain College

Roger Williams College

Rollins College

Rosary College

Rush University

Rust College

Rutledge College

Saginaw Valley State University

Saint Anselm College

Saint Augusline's College

Saint Louis University

Saint Meinrad College

Salem College

Salem College - Main Campus

Salisbury State University

San Diego State University

Savannah State College

Scranton, University of

Seattle Pacific University

Shaw University

Shepherd College

Shimer College

Shippenburg University of Pennsylvania

Siena College

Siena Heights College

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Simpson College

Smith College

South Alabama, University of

South Carolina - Coastal Carolina College, University of

South Carolina - Spartanburg, University of

South Florida, University of

Southeastern Louisiana University

Southeastern Massachusetts University

Southeastern Oklahoma State University

Southeastern University

Southern Arkansas University

Southern Indiana, University of

Southern Mississippi, University of

Southern Utah State College

Southwest Missouri State

Southwest Texas State University

Southwestern Oklahoma State University

Spalding University

Spelnar College

Spertus College of Judaica

Spring Arbor College

Spring Garden College

St. Ambrose University

St. Cloud State University

St. Francis College

St. Francis College

St. John Fisher College

St. Joseph's University

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

St. Lawrence University

St. Mary's University - San Antonio

St. Olaf College

St. Paul's College

St. Thomans, University of

State University of New York - Binghamton

State University of New York at Oswego

State University of New York at Stony Brook

State University of New York Health Science Center - Syracuse

Stephen F. Austin State University

Stephens College

Stephens Institute of Technology

Sterling College

Stillman College

Stockton State College

Sul Ross State University

SUNY College at Purchase

SUNY College of New Paltz

SUNY College of Technology - Utica/Rome

Susquehanna University

Tabor College

Talladega College

Tarleton State University

Taylor University

Temple University

Tennesse Temple University

Tennessee Technological University

Tennessee, University of

SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

Texas A and I University

Texas A&M University at Galveston

Texas Lutheran College

Texas Wesleyan College

Texas Woman's University

Texas, University of - El Paso

Texas, University of - San Antonio

The Citadel

The Ohio State University - Mansfield

The Ohio State University - Marion

The Ohio State University - Newark

The Ozarks, University of

Thomas A. Edison State College

Thomas College

Tiffin University

Toccoa Falls College

Trinity Christian College

Trinity College

Trinity College

Trinity College

Trinity University

Troy State University - Dothan

Tulsa, University of

U. S. Merchant Marine Academy

U. T. Permian Basin

Union College

Union College

Union Experiment Colleges and Graduate School

## SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

United States Military Academy

Unity College

Universidad Central del Caribe

Universidad De Puerto Rico

Universidad Metropolitana

University of Colorado Health Science Center

Upper Iowa University

Upsala College

Urbana University

Ursinus College

Ursuline College

Utah, University of

Utica College of Suracuse University

Valdosta State College

Valparaiso University

Vassar College

Vennard College

Virgin Islands, University of

Virginia Commonwealth University

Virginia Intermont College

Virginia Military Institute

Wabash College

Wagner College

Walsh College

Warner Pacific College

Warner Southern College

Warren Wilson College

Washington College

Wayne State College

Webber College

Weber State College

Wellesley College

Wells College

Wesley College

Wesleyan College

Wesleyan University

West Florida, University of

West Liberty State College

West Oahu College

West Texas State University

West Virginia Weslayan College

Westbrook College

Western Carolina University

Western Illinois University

Western International University

Western New England College

Westfield State College

Westminster College

Westminster College - Salt Lake City

Westmont College

Wheaton College

Wheelock College

Whitman College

Whittier College

Wichita State University - Chemistry Department

Wilberforce University

## SCHOOLS NOT OFFERING HAZARDOUS WASTE EDUCATION

William Carey College

William Paterson College of New Jersey

William Penn College

William Woods College

Williams College

Willian Tyndale College

Wilmington College

Wilmington College

Wilson College

Wingate College

Winthrop College

Wisconsin, University of - Platteville

Wisconsin, University of - Stevens Point

Wisconsin, University of - Superior

Wittenberg University

Wofford College

Woodbury University

Worcester State College

Xavier University

York College of Pennsylvania

# GUIDE TO GRADUATE EDUCATION IN ECOLOGY

By: Allen M. Solomon
Jean A. Solomon
Eldon H. Franz

ECOLOGICAL SOCIETY OF AMERICA, Center for Environmental Studies
Arizona State University, Tempe, AZ 85287-1201

# GUIDE TO GRADUATE EDUCATION IN ECOLOGY IN THE UNITED STATES AND CANADA

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Jean A. Solomon[1]

Environmental Sciences Division

Oak Ridge National Laboratory

Oak Ridge, Tennessee

and

Eldon H. Franz

Environmental Research Center

Washington State University

Pullman, Washington

JULY, 1988

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1. Present Address: International Institute for Applied Systems Analysis A-2361 Laxenburg AUSTRIA

## INTRODUCTION

The institutional listings which follow are intended for use by undergraduate students and others interested in graduate education in ecology. The data should help in identifying institutions which might meet an individual's specific needs in graduate education. Further information (e.g., college catalogues, departmental and programmatic fliers, etc.) can be collected by direct contact with the Department concerned.

The data were assembled from responses to a questionnaire which was first mailed in May 1985 to 757 E.S.A. members. A questionnaire was sent to each university or college department represented in the 1985 E.S.A. membership list. A self-addressed, stamped postcard was also included for respondents to indicate whether or not graduate education in ecology was available at their institution. A second request was sent in the fall of 1985 to those who did not answer the first request. Finally, telephone calls were made to about 20 members who had not responded, and who were located at institutions known to possess successful programs.

Of the 757 respondents, 300 indicated that no program or opportunities for graduate education in ecology existed at their institution; 270 returned completed questionnaires; 25, who had expected to return the questionnaires, were unable to do so; and 162 did not answer the requests. The superb response of about 80% was a pleasant surprise. In the final mailing (May 1987) each respondent was sent a copy of his/her listing, with a request for corrections to the data.

The Education Committee of 1980, chaired by Eldon H. Franz, produced a survey much like the current document. That survey revealed several characteristics of graduate education in ecology as a whole, which are also evident from our current work. Although ecology is recognized as a science and as a profession, few institutions offer M.S or Ph.D. degrees in ecology, as such. On the other hand, most colleges and universities do provide graduate education in ecology, frequently within biological or resource management departments.

Common prerequisites for admission to degree programs in ecological subjects include:

a. Mathematics (algebra, calculus, statistics),
b. Physical sciences (inorganic and organic chemistry, physics),
c. Life science (botany, zoology, genetics, physiology), and
d. Language skills (foreign languages, computer programming).

Admission requirements most often include:

a. Grade point average (GPA) of 3.0 (B) or better,
b. Graduate Record Exam (GRE) scores totaling 1000 or more (verbal and quantitative scores combined), and
c. letters of recommendation from professionals.

Students accepted for a graduate program usually must meet the following requirements to obtain a degree:

a. Passing a preliminary qualifying exam and a comprehensive written exam,
b. Completion of a thesis or dissertation, including an oral defense of the work (there is often a nonthesis option available at the M.S. level),
c. One or more terms of service as a teaching assistant, and
d. Language skills (one or more foreign languages or computer programming languages).

For the purposes of this guide, ecological education was defined in its broadest sense to include all institutions offering graduate ecological work, ranging from universities with separate departments of ecology to small colleges where a masters degree in biology can include a major in ecological subjects. Contact persons who were unsure that their program was "really ecology" were encouraged to fill in the form.

The guide contains one or more entries from each of 220 colleges, universities, and research institutes. When sufficient information was available, a separate listing for each department providing ecological education in the same institution was included (e.g., often both botany and zoology departments offer their own ecology programs). The entries for each department are divided into six groups: Institutional Address, Program Requirements (both entrance and completion), Student Profile, Profile of Recent Graduates, and Subject Matter Strengths. Each of these categories is described below.

## 1. INSTITUTION

The address and telephone number of the Admissions Office are given. This indicates where the student should write or call to obtain entrance forms, college catalogues, information on institutional facilities, and so on. Unless otherwise indicated, the institution is in the U.S.A.

## 2. DEPARTMENT OR PROGRAM

This is the institutional unit offering the ecological education. Occasionally it is an ecology department, but much more often it is a program within a larger department, or an interdepartmental program incorporating faculty from a number of different departments. Thus, "Biology/Ecology" indicates an ecology program within a biology department. The number of faculty is meant to reflect those who are actually involved in ecological education, either on a full or part time basis. In this first edition of the Guide, however, this number is somewhat ambiguous due to lack of clarity in the responses. The Contact is usually the administrative head of the Program or the Department. "Other Programs Offering Graduate Education in Ecology" includes limited information on additional departments in the same institution that also provide graduate ecological education. This information will allow the student to contact that program directly. These programs are not described further within the Guide.

degree program. "Number of Students in Program" refers to the size of the student body studying ecological subject matter concurrently in that department, and the final category "Degrees Program Awards," gives the average number of students that will receive that degree in any one year. These figures were requested as average values over the past five years.

## 5. RECENT PROGRAM GRADUATES

This section indicates the pattern of placement for graduates from these programs. The percentage of recent graduates employed in "Industry," "Government," College-level "Teaching," "Ph.D. Programs," "Post-doctoral Programs," and "Other" categories (private consulting companies, secondary school teaching, etc.) are given.

## 6. STRENGTHS AND SPECIALTIES

Subject Matter Strengths: These are the specific research and/or teaching areas which were perceived by the respondent to be especially strong in this department or program. These responses should help students determine how closely their interests match the strengths of the department.

Formal Teaching/Research Arrangements with Other Institutions: Working relationships with other institutions (e.g., universities, national laboratories, research foundations, etc.) may considerably expand the research, and even teaching, facilities available to the student.

Specialized Facilities: Instrumentation, buildings, field stations, etc. which may offer special opportunities for the student's education. Some information in this category (e.g., computing facilities) may become out of date very quickly, and so should be used with caution.

## UPDATING THE GUIDE

This first edition is intended to be a prototype. Although it may be useful for its explicit purpose, it should be even more valuable as a stimulus to users to help us perfect the guide. Indeed, the Guide to Graduate Education in Ecology will only become practical when it consists of accurate and up-to-date information. We must correct outdated information and add institutions which were missed in this first effort. Therefore, a second edition is needed quickly. We urge representatives of departments in which graduate level ecology is taught to check with other ecology faculty, then to revise their program description, or provide a new program description, with the attached survey form which is the last page of this guide. A new question is included to describe individual faculty in the program, in order to allow readers to evaluate faculty appropriateness for their needs, and another new question asks cooperators for their suggestions on additional data the survey could contain in the future.

## 3. PROGRAM REQUIREMENTS

**Entrance**: These requirements must be met before the student can enter the program. A minimum Grade Point Average (GPA) may be specified. Scores from the Graduate Record Exam (GRE, administered by the Educational Testing Service, Princeton, NJ) may also be required and minimum acceptable scores may be specified. Additional entrance requirements (specific courses, acceptance by a faculty member, etc.) may be noted under "Other."

**Completion**: These requirements must be met before the degree can be awarded. They are specified separately for the masters' level degree (designated here as M.S.; in some cases, the actual degree may be an M.A., M.P.M, etc.) and for the Ph.D. Throughout, a blank means either that no answer was provided or that the requirements were variable.

"Course Hours" indicates the number of semester hours of formal classwork that are required; additional research credits are often also necessary. For a school on the quarter system, quarter hours have been converted to semester hour equivalents (1 quarter hour = 2/3 semester hour). In the case of Canadian universities, no conversion was made. Many schools offer both thesis and non-thesis options at the masters' level. The course hours required for the thesis option are included here; six or so additional hours of classwork are usually required for the non-thesis option. For the Ph.D., a prior masters' level degree is often assumed and equivalent coursework may be required, if this is not the case. A minimum number of course hours is usually not required for the Ph.D.; instead, requirements are determined by the student's committee on a case-by-case basis.

"Specific Courses" indicates whether specific coursework (actual courses, not a 1-credit departmental seminar) is required in the program. The "Qualifying Exam" is usually a written examination taken after most of the coursework has been completed and before admission to candidacy. A "Language" requirement usually involves passing a test, or passing prescribed courses, in one or two foreign languages commonly used in the ecological literature. Sometimes, computer programming languages or other research skills can be substituted for a foreign language. A "Thesis" or dissertation is always required for the Ph.D. but this may not be the case for the M.S. A "Final Exam" is often the public oral defense of the thesis, but may also involve other components. "Required Teaching" indicates the number of semesters of teaching required for the degree, and "Hours of Teaching" is the number of contact hours per week that are commonly involved in a teaching assistantship, whether or not this teaching is required. The answers to this question, however, often apparently include estimated preparation time, as well (i.e., 15-20 hrs).

## 4. STUDENT PROFILE

In this section, characteristics of the student body are described. The number of "Teaching Assistantships" and the number of "Research Fellowships or Assistantships" available to ecology students annually are given. "Years of Student Support" indicates the normal length of time that assistantships can be held; extensions may be available depending on circumstances. "Years Student in Program" represents the average time it takes a student to complete that

Completed survey forms should be sent to:

The Ecological Society of America
Graduate Education Survey
Department of Environmental Science
Arizona State University
Tempe, Arizona 85287-1201

We are very grateful for the hard work of Martha Kirby who keypunched the vast majority of the survey data, and of Anita Osborne-Lee who designed, and several times revised, the data base which forms the foundation of this document. The Environmental Sciences Division of Oak Ridge National Laboratory provided the financial support for the work of Kirby, Osborne-Lee, as well as the time which Allen required to work on the project while he was employed by the Division. Most of the success which this document may achieve should be credited to the hundreds of cooperating ecologists who carefully and thoughtfully filled in the data request form. Although not all cooperators identified themselves, the names follow of those with whom we are familiar. To all those who responded to our request for help on this first edition, we extend our heartiest thanks.

INSTITUTION; COOPERATOR

Acadia University; Thomas B. Herman

Arizona State University; Milton Sommerfeld

Auburn University; Ann Houston Williams

Baylor University; Frederick R. Gehlbach

Boston University (Biology); Robert Tamarin

Boston University (Marine Program); Ivan Valiela

Bowling Green State University; John T. Rotenberry

Brigham Young University; Jerran T. Flinders

Brooklyn College CUNY; David R. Franz

Brown University; Douglass H. Morse

Bucknell University; Warren Abrahamson

California State Polytechnic University; David J. Moriarty

California State University, Fullerton; Steven N. Murray

California State University, Hayward; Robert J. Baalman

California State University, Long Beach; Donald J. Reisch

California State University, Los Angeles; Richard J. Vogl

California State University, Stanislaus; Pamela Roe

Carleton University; Gray Merriam

INSTITUTION; COOPERATOR

Central Missouri State University; John F. Belshe
Clark University; John T. Reynolds
Clemson University; Carl W. Helms
Colorado State University (Forest and Wood Sciences); Richard D. Laven
Colorado State University (Radiology and Radiation Biology); Leslie Fraley, Jr.
Colorado State University (Range Science); Harold Goetz
Colorado State University (Zoology); Bruce A. Wunder
Concordia University; Daphne Fairbairn
Connecticut College; Robert Askins
Cornell University; Richard B. Root
Creighton University; John F. Schalles
Dalhousie University; Roger W. Doyle
Dartmouth College; Richard T. Holmes
Duke University (Botany); Boyd R. Strain
Duke University (Resource Ecology); Curtis J. Richardson
Duke University (Zoology); Daniel A. Livingstone
East Carolina University; Robert R. Christian
East Stroudsburg University; David C. Wartinbee
East Tennessee State University; Dan M. Johnson
East Texas State University; James A. Kushlan
Eastern Kentucky University; Sanford Jones
Eastern Washington University; James Hanegan
Emory University; Donald J. Shure
Fire Science Centre; Ross W. Wein
Florida Institute of Technology; Walter G. Nelson
Florida International University; Suzanne Koptur
Florida State Museum; Norris Williams
Florida State University (Biological Science); Judy Bradford
Florida State University (Oceanography); David Thistle
George Mason University; Larry L. Rockwood
Harvard Forest; David R. Foster
Harvard University; F. A. Bazzaz
Howard University; George Middendorf
Idaho State University; Rod R. Seeley

INSTITUTION; COOPERATOR

Indiana State University; Marion T. Jackson
Indiana University; J. C. Randolph
James Madison University; W. Dean Cocking
Kansas State University (Biology); Terry C. Johnson
Kansas State University (Entomology); David C. Margolies
Kent State University; Robert T. Heath
Laval University; Miroslav M. Grandtner
Long Island University; Greenlaw
Louisiana State University; James G. Gosselink
McNeese State University; James D. Felley
Memorial University; Douglas Morris
Memphis State University; James Payne
Miami University (Botany); John L. Vankat
Miami University (Zoology); Gary W. Barrett
Michigan State University; William E. Cooper
Michigan Technological University; Rolf O. Peterson
Middlebury College; Thomas Root
Millersville University; David A. Zegers
Mississippi State University; Ernest A. Gluesing
Montana State University; Peter F. Brussard (Moore?)
Mount Allison University; C. G. Paterson
New Mexico State University (Fisheries and Wildlife); C. A. Davis
New Mexico State University (Biology); Sanford D. Schemnitz
New York Botanical Garden; Alan R. Berkowitz
North Carolina State University (Ecology); Arthur G. Wollum
North Carolina State University (Entomology); Fred L. Gould
North Dakota State University; J. D. Brammer
Northeastern University; Ernest Ruber
Northern Arizona University; Alan S. White
Northwestern University; Andrew J. Beattie
Oakland University; George J. Gamboa
Ohio State University (Botany); Ralph E. J. Boerner
Ohio State University (Zoology); John Crites
Oklahoma State University (Botany & Microbiology); Arthur J. Pollard

INSTITUTION; COOPERATOR

Oklahoma State University (Zoology); Jerry Wilhm
Old Dominion University; Frank P. Day, Jr.
Oregon State University; Mark V. Wilson
Pan American University; Frank W. Judd
Pennsylvania State University; Edward D. Bellis
Pittsburg State University; Kelting
Princeton University; Henry S. Horn
Purdue University (Biological Sciences); Richard D. Howard
Purdue University (Wildlife Science); H. P. Weeks
Queen's University; D. T. Dennis
Rice University; Paul A. Harcombe
Rutgers University, Camden; Ralph E. Good
Rutgers University, New Brunswick (Botany and Plant Physiology); James A. Quinn
Rutgers University, New Brunswick (Ecology); Joanna Burger
Saint Louis University; R. A. Aldridge
San Diego State University; William Hazen
San Francisco State University; T. M. Neisen
Simon Fraser University (Biological Sciences); Larry M. Dill
Simon Fraser University (Natural Resources Management); J. Chad Day
Simon Fraser University (Pest Management); M. Mackauer
Sonoma State University; Robert J. Sherman
Southern Illinois University, Carbondale; James S. Fralish
Southern Illinois University, Edwardsville; Richard B. Brugam Southwest Missouri State University; Paul L. Redfearn, Jr.
Stanford University; Robert D. Simoni
State University of New York, Albany; Margaret M. Stewart
State University of New York, Buffalo; Kenton M. Stewart
State University of New York, Geneseo; Robert C. Beason
State University of New York, Syracuse (Environmental and Forest Biology); Robert L. Burgess
State University of New York, Syracuse (Faculty of Forestry); Allan P. Drew
Syracuse University; F. R. Hainsworth
Texas A & I University; Carl Wood
Texas A & M University; Norman O. Dronen, Jr.

INSTITUTION; COOPERATOR

Towson State University; Erik P. Scully
Tufts University; Francis Cheu
Tulane University; Stuart S. Bamforth
Universite de Montreal; Peter Harper
Universite de Sherbrooke; Andre Cyr
University of Alabama, Birmingham; Ron Gettinger, Ken Marion, Rob Angus
University of Alabama, Tuscaloosa; Arthur C. Benke
University of Alaska; Tom C. Shirley
University of Alberta; James A. Beck
University of Arizona; Conrad A. Istock
University of Arkansas; Arthur V. Brown
University of British Columbia (Range Ecology); V. C. Runecleles
University of British Columbia (Zoology); Judith H. Myers
University of California, Berkeley; Joe R. McBride
University of California, Davis; R. Merton Love
University of California, Los Angeles; Martin L. Cody
University of California, Riverside; I. P. Ting
University of California, Santa Cruz (Agroecology); Stephen R. Gliessman
University of California, Santa Cruz (Biology); Robert S. Edgar
University of Chicago; Brian Charlesworth
University of Colorado; Jane H. Bock
University of Delaware; Lawrence E. Hurd
University of Florida (Botany); Jack Ewel
University of Florida (Zoology); John H. Kaufman
University of Georgia (Ecology); D. A. Crossley, Jr.
University of Georgia (Forest Biology); Lindsay Boring
University of Georgia (Zoology); Ron Pulliam
University of Guelph; R. C. Anderson
University of Houston; Guy N. Cameron
University of Idaho (Biological Sciences); George Spoomer
University of Idaho (Fish and Wildlife); Edward O. Garton
University of Idaho (Forest Resources); A. A. Moslemi
University of Illinois, Chicago; Tom Poulson
University of Illinois, Urbana (Plant Biology); Carol Augspurger

INSTITUTION; COOPERATOR

University of Illinois, Urbana (Ecology, Ethology & Evolution); George Batzli
University of Iowa; John Menninger
University of Kansas (Ecology); Kenneth B. Armitage
University of Kansas (Botany); James L. Hamrick
University of Maine (Botany and Plant Pathology); George L. Jacobson, Jr.
University of Maine (Oceanography); Les Watling
University of Maine (Wildlife Department); Malcolm Hunter
University of Manitoba; Neil J. Holliday
University of Maryland, Baltimore County; T. W. Cronin
University of Maryland, College Park (Marine-Estuarine-Environmental Sciences); Robert Menzer
University of Maryland, College Park (Botany); Irwin N. Forseth
University of Massachusetts, Amherst; Dana P. Snyder
University of Massachusetts, Boston; Michael P. Shianis
University of Miami; A. Smith
University of Michigan (Biological Sciences); Deborah Goldberg
University of Minnesota, Duluth (Biology); M. C. Whiteside
University of Minnesota, Minneapolis (Ecology and Behavioral Biology); Edward J. Cushing
University of Minnesota, St. Paul; Jim Perry
University of Missouri, Columbia (Biological Science); Felix Breden
University of Missouri, Columbia (Forestry); Tom Coon
University of Missouri, Kansas City; Daniel H. Stern
University of Missouri, St. Louis; Victoria Sork
University of Montana (Botany); Jim Habeck
University of Montana (Forestry); Nellie Stark
University of Montana (Zoology); Donald A. Jenni
University of Nebraska, Lincoln; Royce E. Ballinger
University of Nebraska, Lincoln (Forestry, Fisheries and Wildlife); Ronald M. Case
University of Nebraska, Omaha; Thomas B. Bragg
University of Nevada; Peter L. Starkweather
University of New Hampshire; Thomas D. Lee
University of New Mexico; James R. Gosz

INSTITUTION; COOPERATOR

University of North Carolina, Chapel Hill (Ecology); Cottie Vickers

University of North Carolina, Chapel Hill (Environmental Sciences and Engineering); Edward J. Kuenzler

University of North Carolina, Wilmington; James Merritt

University of North Dakota; Michael J. Auerbach

University of Notre Dame; Stephen Carpenter

University of Oklahoma (Botany and Microbiology); Scott L. Collins

University of Oklahoma (Zoology); James N. Thompson, Jr.

University of Oregon; Peter W. Frank

University of Ottawa; J. McNeill

University of Pennsylvania; Robert E. Ricklefs

University of Rhode Island (Natural Resources); William R. Wright

University of Rhode Island (Zoology); J. Stanley Cobbe, Jr.

University of Rochester; John Jaenike

University of South Carolina; L. T. Wimer

University of South Florida; Earl D. McCoy

University of Southern Mississippi; Stephen T. Ross

University of Southwestern Louisiana; Robert Jaeger

University of Tennessee; Dewey L. Bunting

University of Texas, Austin; Norma Fowler

University of Texas, Dallas; William G. Cale

University of Texas, El Paso; Artie L. Metcalf

University of Toledo; Woon Jyung

University of Utah; Phyllis D. Coley

University of Vermont (Wildlife & Fisheries Biology); David H. Hirth

University of Vermont (Zoology); Jos. J. Schall

University of Victoria; P. Gregory

University of Virginia; William E. Odum

University of Washington (Botany); Lawrence C. Bliss

University of Washington (Zoology); C rdon H. Orians

University of Waterloo; Wayne R. Hawthorn

University of Western Ontario; Paul T. Handford

University of Windsor; Jan J. H. Ciborowski

University of Wisconsin, Green Bay; Paul E. Jager

INSTITUTION; COOPERATOR

University of Wisconsin, LaCrosse; James Parry
University of Wisconsin, Madison (Botany); Timothy F. Allen
University of Wisconsin, Madison (Environmental Studies); Barbara L. Borns
University of Wisconsin, Madison (Landscape Architecture); Evelyn Howell
University of Wisconsin, Madison (Oceanography and Limnology); John J. Magnuson
University of Wisconsin, Madison (Wildlife Ecology); Stanley A. Temple
University of Wisconsin, Milwaukee; Forest Stearns
University of Wyoming (Botany); Dennis H. Knight
University of Wyoming (Range Management); William A. Laylock
University of Wyoming (Zoology); Mark S. Boyce
Utah State University (Ecology); Frederic H. Wagner
Utah State University (Fisheries and Wildlife); Joseph A. Chapman
Vanderbilt University; William G. Eickmeier
Virginia Commonwealth University; John F. Pagels
Virginia Polytechnic Institute; Gerald H. Cross
Wake Forest University; Ronald V. Dimock
Walla Walla College; Ronald L. Carter
Washington State University (Botany); Richard N. Mack
Washington State University (Environmental Science & Regional Planning); William W. Budd
Washington State University (Zoology); Laurence D. Mueller
Washington University; Barbara A. Schaal
West Virginia University (Biology); Gerald E. Lang
West Virginia University (Forest Ecology); Harry Wiant
Western Carolina University; F. W. Harrison
Western Kentucky University; Joe E. Winstead
Western Michigan University; Richard W. Pippen
Western State College of Colorado; Hugo A. Ferchau
Western Washington University; Thomas E. Lacher, Jr.
Woods Hole Oceanographic Institution; John M. Teal
Wright State University; James R. Runkle
Yale University; John C. Gordon

**ACADIA UNIVERSITY**
Admissions Office
Wolfville, Nova Scotia, Canada B0P 1X0
902-542-2201

**DEPARTMENT OR PROGRAM**: Biology (12 faculty)
Contact: F.C. Bent, M.A. Gibson
Telephone: 902-542-2201

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: NO
Other: "B" average in major field in last two undergraduate years.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 12 | NO | YES | NO | YES | YES | 0 | 0 |

Other: Two full-year advanced courses, at least one of which is on graduate level. The MS final exam is a thesis defense.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 12 | 2 | 2 | 2 | 30 | 10 |

Other: These figures include all our biology students. However, more than half of these students are pursuing degrees in ecological fields.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 10 | 20 | 5 | 60 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Estuarine and fisheries biology; community dynamics & energetics; ecosystem modeling; ecological impact assessment; behavioral ecology and population dynamics of birds, small mammals and insects; seed bank studies; wildlife management.

Formal Teaching/Research Arrangements With Other Institutions: Research associates of the department are affiliated with the National Research Council, Fisheries and Oceans, and Agriculture Canada.

Specialized Facilities: E. C. Smith Herbarium - large holdings of vascular plants and fungi; Weston Research Centre - holding facility for organisms; greenhouse; lab and offices in estuarine center; field station; SEM; CYBER 170/825 and CDC CYBER 171 mainframes.

**ARIZONA STATE UNIVERSITY**
Office of Graduate Admissions
Tempe, AZ 85287
602-965-3251

**DEPARTMENT OR PROGRAM**: Botany & Microbiology (24 faculty)
Contact: Dr. Milton Sommerfeld
Telephone: 602-965-3414

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1100 verb. & quant. combined
Other: Basic background in botany or biology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 1 | 6 |
| Ph.D. | 84 | NO | NO | YES | YES | YES | 1 | 6 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 14 | 10 | 2 | 2 | 10 | 4 |
| Ph.D. | 9 | 5 | 3 | 3 | 4 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 10 | | 50 | | 20 |
| Ph.D. | 10 | 20 | 20 | | 20 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Desert ecology, ecophysiology of desert plants, reclamation, applied ecology in semi-arid regions.

Specialized Facilities: Best herbarium of southwestern USA, two research greenhouses, field station in transition zone (5000 ft), multiunit PC facility, field vehicles.

**AUBURN UNIVERSITY**
Graduate School, Hargis Hall
Auburn, AL 36849
205-826-4700

**DEPARTMENT OR PROGRAM:** Zoology (19 faculty)
Contact: Dr. John Pritchett
Telephone: 205-826-4850
Other Programs Offering Graduate Education in Ecology: Wildlife (6 faculty), contact Dr. Ralph Mirachi, 205-826-4850; Entomology (12 faculty), contact Dr. Mike Williams, 205-826-4850.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: verb. 450, quant. 450

Other: Ecology (1 qtr.), genetics (1 qtr.), organic chemistry (2 qtr.), physics (1 qtr.), calculus (1 qtr.).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 53 | NO | YES | YES | YES | YES | 1 | 13 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 23 | 15 | 2 | 2 | 48 | 12 |
| Ph.D. | 3 | 3 | 3 | 3 | 7 | 1 |

Other: Time limits on support depend on circumstances.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 57 | | 43 | | |
| Ph.D. | | | 100 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Basic biological and ecological studies of animal species; economic entomology including cultural, chemical and biological control of pests on major commodities grown in Ala.; biology, ecology, and conservation of Alabama wildlife.

Formal Teaching/Research Arrangements With Other Institutions: USDA Regional Parasite Lab., Ala. Dept. of Conservation & Natural Resources; U. of AL; Miss. State U.; Eufala, Wheeler, and Bon Secour National Wildlife Refuges; TN Valley Authority; Oak Ridge Associated Universities; Rockefeller State Wildlife Refuge.

Specialized Facilities: School of Veterinary Medicine; USDA Forest Service Lab; Alabama Agricultural Experiment Station and 13 substations & fields; IBM 3033; SE Agriculture Weather Service Center; Leach Nuclear Science Center; D. E. Davis Arboretum.

**BAYLOR UNIVERSITY**
Waco, TX 76798
817-755-1811

**DEPARTMENT OR PROGRAM:** Biology/Ecology (17 faculty)
Contact: Keath Hartberg
Telephone: 817-755-2911
Other Programs Offering Graduate Education in Ecology: Environmental Studies (2 faculty), contact Merle Alexander, 817-755-3400.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES
GRE Required: YES
Minimum GRE Scores Required: NO
Other: Typical undergraduate biology, zoology, or botany major.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 0 | NO | YES | NO | YES | YES | 0 | 0 |

Other: Students may take a terminal M.A. (teaching degree); M.S., all in biology with emphasis in ecology; M.S. in environmental biology with applied emphasis, or a masters of environmental studies (strictly applied).

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 18 | 2 | 3 | 3 | 20 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 50 | | | 40 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Southwestern and Mexican vertebrate ecology, behavior, and limnology, including especially applied aspects and multivariate statistical approaches to problems.

Formal Teaching/Research Arrangements With Other Institutions: Oak Ridge National Laboratory and Texas System of Natural Laboratories.

Specialized Facilities: Libraries, herbaria, greenhouses, field stations and sites, and computers.

**BOSTON UNIVERSITY**
Graduate School, 705 Commonwealth Avenue
Boston, MA 02215
617-353-2693

**DEPARTMENT OR PROGRAM:** Biology (30 faculty)
Contact: T. Kunz
Telephone: 617-353-2432
Other Programs Offering Graduate Education in Ecology: Energy and Environmental Studies (15 part-time faculty), contact T. Lakshmanan, 617-353-3083.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE scores required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | YES | NO | YES | NO | YES | 0 | |
| Ph.D. | 64 | YES | YES | YES | YES | NO | 0 | |

Other: Ph.D. - defense and seminar.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 0 | 0 | 2 | 5 | 2 |
| Ph.D. | 12 | 8 | 4 | 5 | 20 | 4 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population ecology, behavioral ecology, physiological ecology, evolutionary ecology, radioecology.

Formal Teaching/Research Arrangements With Other Institutions: Consortium with area Universities; Manomet Bird Observatory.

Specialized Facilities: Field station at Peterboro, NH; excellent computer, radiation counting, physiological ecology equipment; field vehicles; library; shop; etc.

**BOSTON UNIVERSITY**
Marine Biological Laboratory
Woods Hole, MA 02543
617-548-3705

**DEPARTMENT OR PROGRAM**: Marine Program (4 faculty)
Contact: I. Valiela
Telephone: 617-548-3705

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | 32 | NO | YES | YES | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 3 | 10 | | 4-10 | 32 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 10 | 10 | 30 | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecology; behavior of marine animals.

Formal Teaching/Research Arrangements With Other Institutions: Cross registration with MIT/Woods Hole Oceanographic Institution joint program.

Specialized Facilities: The comprehensive and superb facilites of the Woods Hole Marine Biological Laboratory and Oceanographic Institution.

**BOWLING GREEN STATE UNIVERSITY**
Admissions Office
Bowling Green, OH 43403
419-372-2086

**DEPARTMENT OR PROGRAM:** Biological Sciences/ Ecology, Evolution, Behavior (9 faculty)
Contact: Dr. R. Noble
Telephone: 419-372-2332

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE scores required: 50th percentile on each test.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 1 | 10 |
| Ph.D. | 60 | YES | YES | YES | YES | YES | 1 | 10 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 20 | 3 | 3 | 3 | 45 | 10 |
| Ph.D. | 20 | 3 | 4 | 5 | 35 | 5 |

Other: The above figures include all graduate students in Biological Sciences.

**RECENT PROGRAM GRADUATES** - No data available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, algology, plant and animal community ecology, behavioral and evolutionary ecology.

Specialized Facilities: Animal research facility; greenhouse; wildlife sanctuary; Life Sciences Complex of offices, classrooms, laboratories; animal maintainence facility; 4,800 sq. ft. research and teaching greehouse; 26 ha. research area and preserve; good mainframe and microcomputer facilities.

**BRIGHAM YOUNG UNIVERSITY**
B356 A. Smoot Building
Provo, UT 84602
801-378-4091

**DEPARTMENT OR PROGRAM:** Botany (14 faculty)
Contact: Wilford M. Hess
Telephone: 801-378-2582
Other Programs Offering Graduate Education in Ecology: Range Science (4 faculty, contact Wilford M. Hess, 801-378-2582; Zoology (25 faculty), contact Richard Heninger, 801-378-2582.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES Score: 3.00 GRE Required: YES

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | YES | YES | YES | 0 | 0 |
| Ph.D. | 60 | YES | YES | YES | YES | YES | 2 | 3 |

Other: Computer programming or statistics may substitute for one language. Course requirements are arranged by the committee.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 1 | 2 | 3 | 20 | 8 |
| Ph.D. | 9 | 2 | 4 | 4 | 12 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 20 | 10 | 50 | | |
| Ph.D. | 20 | 30 | 25 | | 10 | 15 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Strong in community ecology and field biology. Good capabilities in correlation studies in which theoretical concepts are tested.

Formal Teaching/Research Arrangements With Other Institutions: Annual field class in Panama at Barro Colorado Island.

Specialized Facilities: Greenhouses; scanning electron microscope lab; secondary plant products lab; good, accessible computer facilities; stable isotope lab with mass spectro-meter. Field stations in Mojave Desert and northern Rocky Mountains.

**BROOKLYN COLLEGE CUNY**
Office of Graduate Admissions
Brooklyn, NY 11210
718-780-5001

**DEPARTMENT OR PROGRAM:** Biology (24 faculty)
Contact: George Fried
Telephone: 718-780-5396

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO
Other: General biology, genetics, physiology, general and organic chemistry, general physics (1 sem.), calculus.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | YES | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 0 | 3 | 3 | 6 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 40 | | | 40 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecology; evolution; estuaries.

Formal Teaching/Research Arrangements With Other Institutions: Since Brooklyn College is part of the CUNY system, students may take courses at several other colleges. Major herbaria at Brooklyn and New York Botanical Gardens; CUNY association with American Museum of Natural History; N.Y. Aquarium research labs.

Specialized Facilities: Greenhouse, major computer center with free computer time, Gateway National Recreation Area.

**BROWN UNIVERSITY**
Graduate School
Providence, RI 02912
401-863-2698

**DEPARTMENT OR PROGRAM**: Biology & Medicine/Ecology & Evolutionary Biology (8 faculty)
Contact: Douglass H. Morse
Telephone: 401-863-3152
Other Programs Offering Graduate Education in Ecology: Geological Sciences (2 faculty), contact Thompson Webb III, 401-863-3128.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO
Other: Advanced Biology GRE required; general background obviously important.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 8 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 0 | NO | YES | YES | YES | YES | 6 | 6 |

Other: All students participate in weekly program seminar, attend colloquia.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 0 | 0 | 2 | 1 | |
| Ph.D. | 3 | 2 | 5 | 5 | 9 | |

Other: Ecology and Evolutionary Biology is a new program; currently, the most advanced student is in the 4th year.

**RECENT PROGRAM GRADUATES** - No data available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Experimental approach to field studies, integrating field, laboratory, and/or theoretical techniques; conceptual emphasis on mechanisms from behavior, molecular genetics, physiology & morphology as applied to questions ranging from genome evolution to community structure; cooperative paleoecology program with Geoscience Dept.

Specialized Facilities: 7000 current periodicals & 500,000 bound volumes in science library; greenhouse, herbarium, culture rooms, IBM 3081 run under CMS; a decentralized network of smaller computer systems is being developed.

**BUCKNELL UNIVERSITY**
Graduate Studies Director
Lewisburg, PA 17837
717-524-1304

**DEPARTMENT OR PROGRAM:** Biology (11 faculty)
Contact: Jack Horclerode
Telephone: 717-524-1124
Other Programs Offering Graduate Education in Ecology: Animal Behavior (20 faculty), contact Douglas Candland, 717-524-1431

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES
Score: 2.80
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 8 | NO | NO | YES | YES | YES | 0 | 20 |

Other: Normally masters candidates take four classroom courses, two research courses, and one course entitled "thesis."

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 2 | 2 | 2 | 9 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 20 | 10 | 30 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant-herbivore interactions, plant life history strategies, fire ecology, freshwater ecology (e.g., physico-chemical factors, productivity), marine biology (e.g., shark biology, mollusk biology), primate ecology.

Formal Teaching/Research Arrangements With Other Institutions: Boston University Marine Program (member of a consortium), Archbold Biological Station (Florida).

Specialized Facilities: Large herbarium, greenhouses, natural area (fields and old-growth forest), Honeywell CP-6 and VAX mainframes, microcomputers, transmission electron microscope, scintillation equipment, numerous growth chambers, primate labs, animal care facilities.

**CALIFORNIA STATE POLYTECHNIC UNIVERSITY**
3801 W. Temple Blvd.
Pomona, CA 91768
714-869-2000

**DEPARTMENT OR PROGRAM:** Biological Sciences (35 faculty)
Contact: Dr. Don C. Force
Telephone: 714-869-4036

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.40

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 15 | 1 | 2 | 3 | 25 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 15 | 10 | 25 | 2 | 48 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Avian ecology; insect ecology; vertebrate physiological ecology; marine ecology; large mammal ecology.

Formal Teaching/Research Arrangements With Other Institutions: Member, Southern California Ocean Studies Consortium; Member, California Desert Studies Consortium.

**CALIFORNIA STATE UNIVERSITY, FULLERTON**
Office of Admissions and Records
Fullerton, CA 92634
714-773-3614

**DEPARTMENT OR PROGRAM:** Biological Science (25 faculty)
Contact: Steven N. Murray
Telephone: 714-773-3614

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO
Other: Undergraduate degree in Biology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

Other: Development of approved course study plan, research proposal.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 15 | 5 | 3 | 2 | 40 | 10 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 15 | 10 | 15 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecology, physiological ecology, terrestrial plant ecology.

Formal Teaching/Research Arrangements With Other Institutions: Member, Southern California Ocean Studies Consortium (providing access to facilities and research vessel).

Specialized Facilities: Arboretum, wildlife sanctuary, desert studies field station, herbarium (flowering plants, mosses), greenhouse, computer applications courses specifically for biology, new SEM facility.

**CALIFORNIA STATE UNIVERSITY, HAYWARD**
Admissions and Records
Hayward, CA 94542
415-881-3817

**DEPARTMENT OR PROGRAM:** Dept. of Biological Sciences (16 faculty)
Contact: John C. Belton
Telephone: 415-881-3471

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES Score: 2.75
GRE Required: YES
Minimum GRE Scores Required: 65% on advanced biology test

Other: Organic chemistry (1 yr), physics (1 yr), math (2 quarters), ecology, genetics, physiology, evolution, development.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 1 | 2 |

Other: Population ecology course; graduate seminar; GRE in advanced biology. Oral final exam.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 0 | 1 | 2 | 5 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 25 | 25 | | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine and wetland ecology; population ecology

Formal Teaching/Research Arrangements With Other Institutions: Moss Landing Marine Laboratory; Lawrence Livermore National Laboratory.

Specialized Facilities: Terrestrial and marsh field stations; herbarium; greenhouse; insectory; library; micro and mainframe computer facilities; vertebrate & invertebrate museums.

**CALIFORNIA STATE UNIVERSITY, LOS ANGELES**
Los Angeles, CA 90032

**DEPARTMENT OR PROGRAM:** Biology (20 faculty)
Contact: Dr. David Soltz
Telephone: 213-224-3258

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: YES
Other: genetics, biometrics, cell biology, general ecology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

Other: Seminar talk to faculty upon completion of MS research project.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 15 | 5 |

Other: Many teaching and a few research assistantships are available.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 10 | 20 | 20 | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Fire ecology; California fish ecology; desert ecology; chaparral ecology; population dynamics; mammal physiology; marine intertidal studies.

Formal Teaching/Research Arrangements With Other Institutions: U.S. Park Service, U.S. Forest Service, California State Parks, California Ocean Consortium, California Desert Consortium.

**CALIFORNIA STATE UNIVERSITY, LONG BEACH**
Long Beach, CA 90840
213-498-5471

**DEPARTMENT OR PROGRAM:** Biology (24 faculty)
Contact: Dr. Larry Leamy
Telephone: 213-498-4806

**PROGRAM**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 2.75 Minimum GRE Scores Required: 50th percentile on both verb. & quant.
Other: Each applicant is considered on an individual basis.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NC | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 12 | 5 | 2 | 2 | 60 | 13 |

**RECENT PROGRAM GRADUATES** - No data available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine biology and terrestrial biology.

**CALIFORNIA STATE UNIVERSITY, STANISLAUS**
Graduate Office
Turlock, CA 95380
209-667-3129

**DEPARTMENT OR PROGRAM**: Marine Science/Moss Landing Marine Laboratories (7 faculty)
Contact: John Martin
Telephone: 408-633-3304

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: NO

Other: Quantitative marine science and any 3 of the following: geological, physical, chemical, or biological oceanography; marine ecology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | NO | YES | YES | 0 | 0 |

Other: Graduate writing requirement.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 2 | 2 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | | 100 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine field ecology; kelp forest ecology; marine invertebrates, fish, mammals.

Formal Teaching/Research Arrangements With Other Institutions: This is a joint program between our marine station, Moss Landing Marine Labs and CSU-Stanislaus, Dept. Biol. Sci. Students take all course work and do thesis reseach while in residence at MLML.

Specialized Facilities: Moss Landing Marine Laboratories.

**CARLETON UNIVERSITY**
Faculty of Graduate Studies and Research
Ottawa, Canada K1S5B6
613-564-4403

**DEPARTMENT OR PROGRAM**: Ottawa-Carleton Center for Graduate Studies and Research in Biology (58 faculty)
Contact: Dr. G. Merriam
Telephone: 613-564-3662

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.10

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 4 | NO | NO | NO | YES | YES | 0 | 5 |
| Ph.D. | 8 | NO | YES | NO | YES | YES | 0 | 5 |

Other: M.S. research thesis = 3 course credits maximum; Ph.D. research thesis = 8 course credits maximum.

**STUDENT PROFILE**

| | Teaching Assist-antship | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 20 | 6 |
| Ph.D. | | | 4 | 4 | 15 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 20 | | 50 | | 15 |
| Ph.D. | 20 | 20 | 30 | | 20 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioral ecology, biogeography and arthropod systematics, landscape ecology and fragmented habitats.

Formal Teaching/Research Arrangements With Other Institutions: Entire program is a cooperative one with University of Ottawa under the Ottawa-Carleton Center for Graduate Studies and Research in Biology. Adjunct Professor appointments from Ottawa area government labs provide additional strength.

Specialized Facilities: Walk-in access to National Museums collections; National Library; on-campus greenhouses; controlled environments; vivarium; co-operative access to Queen's University Biology Station, U.B.C. Geology Field Station; free mainframe computer access.

**CENTRAL MISSOURI STATE UNIVERSITY**
Admissions, Graduate
Warrensburg, MO 64093
816-429-4290

**DEPARTMENT OR PROGRAM:** Biology (10 faculty)
Contact: Dr. James Smith
Telephone: 816-429-4933

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.50

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 0 | 2 | 2 | 8 | 7 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 20 | 20 | 20 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: General biology with ecological strength in aquatic ecology & entomology.

Specialized Facilities: Research area nearby and cooperative programs with Missouri Department of Conservation and Missouri Department of National Resources.

**CLARK UNIVERSITY**
Dept. of Biology
Worcester, MA 01610
617-793-7173

**DEPARTMENT OR PROGRAM**: Biology (10 faculty)
Contact: John T. Reynolds
Telephone: 617-793-7512

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | YES | NO | YES | YES | 0 | 6 |
| Ph.D. | 48 | NO | YES | NO | YES | YES | 1 | 6 |

Other: Specific course requirements are determined by the advisory committee.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 2 | 2 | 2 | 8 | 4 |
| Ph.D. | 4 | 2 | 2 | 4 | 6 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 15 | | 50 | | 20 |
| Ph.D. | 15 | 25 | 25 | | 25 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population ecology, symbiosis, ethology, ecological genetics.

Formal Teaching/Research Arrangements With Other Institutions: Bermuda Biological Station, Worcester Polytechnical Institute, College of the Holy Cross, Worcester State College, Worcester Foundation for Experimental Biology, University of Massachusetts Medical Center.

Specialized Facilities: Greenhouse, insectary, mammal rearing facilities, science library, new science building, many microcomputers, VAX mainframes, 7-acre mature beech-maple forest, 180-acre field site with varied fresh water and terrestrial habitats, electron microscopes.

**CLEMSON UNIVERSITY**
The Graduate School
Clemson, SC 29631
803-656-3195

**DEPARTMENT OR PROGRAM:** Biological Sciences (21 faculty)
Contact: Carl. W. Helms
Telephone: 803-656-2328

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: Verb. 450, quant. 450

Other: Background equivalent to one of the department's undergraduate degrees.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | NO | YES | 0 | 20 |
| Ph.D. | 0 | NO | YES | NO | YES | YES | 0 | 20 |

Other: Non-thesis option available for MS (36 hrs course-work). Twelve months continuous residence required for PhD.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 5 | 3 | 3 | 5 | 5 |
| Ph.D. | 5 | 5 | 4 | 4 | 5 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | | | 80 | | 10 |
| Ph.D. | 25 | 25 | 25 | | 25 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Theoretical, population and statistical (quantitative) ecology; aquatic ecology and limnology; biogeochemistry; inshore marine ecology (benthos and meiofauna); animal behavior; physiological plant ecology; population genetics; ornithology; invertebrate zoology.
Formal Teaching/Research Arrangements With Other Institutions: Belle Baruch Marine Institute, Georgetown, SC; Savannah River Laboratory, Aiken SC; Oak Ridge Associated Universities, Oak Ridge, TN; Highlands Biological Station, Highlands, NC; Coweeta Hydrologic Laboratory, Franklin, NC.; Forest Science Institute.
Specialized Facilities: Offices and labs in 4 buildings with field station, research greenhouse, and vivarium; vertebrate and plant collections; environmental chambers; EM lab; IBM & DEC mainframes and micros; boats and vehicles; 31,000 acres of wildlands under Clemson care.

**COLORADO STATE UNIVERSITY**
Room 131 Forestry
Ft. Collins, CO 80523
303-491-6911

**DEPARTMENT OR PROGRAM**: Forest and Wood Sciences (17 faculty)
Contact: Dr. A. A. Dyer
Telephone: 303-491-6911

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 72 | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 10 | | 2 | 15 | 3 |
| Ph.D. | 2 | 10 | | 5 | 15 | 2 |

Other: Both MS and PhD students are supported throughout their programs.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 50 | | 25 | | |
| Ph.D. | 25 | 50 | 25 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Fire ecology, forest ecology, physiological plant ecology.

Formal Teaching/Research Arrangements With Other Institutions: University of Colorado, University of California-Berkeley, Utah State University, Duke University.

Specialized Facilities: Standard lab and field facilities; physiology lab; silviculture lab; fire science lab; 16-bit microcomputers; University Cyber 205 mainframe; greenhouses; library; Bannister tree-ring measurer.

**COLORADO STATE UNIVERSITY**
Office of Admissions
Ft. Collins, CO 80523
303-491-5490

**DEPARTMENT OR PROGRAM**: Radiology and Radiation Biology (16 faculty)
Contact: M. M. Elkind
Telephone: 303-491-5222

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO

Other: General physics (1 yr), general chemistry (1 yr), general biology (1 yr), calculus (1 yr).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 72 | YES | NO | NO | YES | YES | 0 | 0 |

Other: Ph.D - manuscript ready to submit for publication.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 2 | 2 | 2 | 3 | 1 |
| Ph.D. | 0 | 2 | 5 | 5 | 3 | 1 |

Other: These figures are for radioecology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | 30 | | 10 | | 10 |
| Ph.D. | 40 | 50 | | | | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Radionuclide cycling, modeling, waste management, dose assessment, impacts of uranium mining and milling.

Formal Teaching/Research Arrangements With Other Institutions: Research arrangements for students have been (or are) in effect with Idaho National Engineering Laboratory, Los Alamos National Laboratory, and Savannah River Ecology Laboratory.

Specialized Facilities: Highly specialized radiation detection equipment; several microcomputers plus university mainframe computers.

**COLORADO STATE UNIVERSITY**
207 Administration Annex
Ft. Collins, CO 80523
303-491-6900

**DEPARTMENT OR PROGRAM**: Range Science (11 faculty)
Contact: Harold Goetz
Telephone: 303-491-6677

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | NO | YES | 0 | 0 |
| Ph.D. | 72 | NO | YES | YES | YES | YES | 0 | 0 |

Other: Thesis and non-thesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 20 | 2 | 3 | 35 | 13 |
| Ph.D. | 1 | 25 | 3 | 4 | 28 | 7 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 30 | 10 | 20 | | 20 |
| Ph.D. | 20 | 20 | 30 | | 10 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Systems ecology, range ecosystem management, range ecology, ecophysiology.

Formal Teaching/Research Arrangements With Other Institutions: University of Buenos Aires-Research Winrock International, Agriculture Research Service (USDA).

Specialized Facilities: Composition analysis lab; photosynthesis and carbon-14 lab; reclamation lab; natural resources ecology lab; super computer (Cyber).

**COLORADO STATE UNIVERSITY**
Admissions and Records
Ft. Collins, CO 80523

**DEPARTMENT OR PROGRAM:** Zoology/Ecological Studies (80 faculty)
Contact: Bruce A. Wunder
Telephone: 303-491-7011

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.20 Minimum GRE Scores Required: 70% on both verb. and quant.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | NO | NO | YES | | YES | 0 | 0 |
| Ph.D. | | NO | NO | YES | YES | YES | 0 | 0 |

Other: MS - thesis and non-thesis options available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | | 2 | 2 | 30 | 3 |
| Ph.D. | 10 | | 3 | 4 | 30 | 3 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological ecology, systems ecology.

Specialized Facilities: State, federal and private sector ecologists in Fort Collins combine with those at C.S.U. to form a community of over 150 professionals. Colorado has unique geographical and physiognomic diversity.

**CONCORDIA UNIVERSITY**
2145 MacKay
Montreal, Quebec H3G IM8 Canada
514-848-3800

**DEPARTMENT OR PROGRAM:** Biology (23 faculty)
Contact: E. J. Maly
Telephone: 514-848-3390

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Other: There is some flexibility in entrance requirements; students are encouraged to correspond directly with faculty in whose areas they are interested.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 12 | NO | NO | NO | YES | NO | 0 | 10 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 20 | 0 | 2 | 3 | 30 | 6 |

Other: This MS program is expanding rapidly, hence the low number of degrees awarded annually thus far. Students may go on to a PhD in Biology through the Special Individual Program administered directly by the faculty of graduate studies.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 40 | 10 | | 25 | 25 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecological genetics & population ecology of insects; zooplankton competition & predation; ecology, biology, pathogenesis & systematics of waterfowl helminths; soil fungal ecology; behavioral ecology and optimal foraging theory; ecotoxicology of fishes.

Formal Teaching/Research Arrangements With Other Institutions: Agreements are in place to use McGill University Field Station, University de Montreal field facilities, and the Morgan Arboretum. Cross registration is allowed for courses among Concordia, McGill, Univ. de Montreal, and Univ. de Quebec at Montreal.

Specialized Facilities: Extensive greenhouse, SEM, controlled environment rooms, analytical facilities for research in ecotoxicology, mobile laboratory, boats.

**CONNECTICUT COLLEGE**
Mohegan Avenue
New London, CT 06320
203-447-7511

**DEPARTMENT OR PROGRAM**: Zoology Department (6 faculty)
Dept./Prog. Head: Paul Fell
Telephone: 203-447-1911
Other Programs Offering Graduate Education in Ecology: Botany Department (4 faculty), contact Scott Warren, 203-447-1911

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO GRE Required: NO
Other: Acceptance by a specific faculty member, background in biology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | NO | NO | NO | YES | NO | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 1 | 2 | 2 | 2 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 10 | 20 | 40 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant community ecology (saltmarsh and forest); vegetation management and herbicide use; physiological ecology (marine invertebrates); bird community ecology.

Formal Teaching/Research Arrangements With Other Institutions: Woods Hole Marine Sciences Consortium.

Specialized Facilities: Greenhouse, herbarium, 425-acre arboretum with two natural areas, boats and other equipment for marine research, growth chambers.

**CORNELL UNIVERSITY**
Graduate School/Sage Hall
Ithaca, NY 14853
607-255-4884

**DEPARTMENT OR PROGRAM:** Field Ecology and Evolutionary Biology (38 faculty)
Contact: P. L. Marks
Telephone: 607-255-6583

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: NO

Other: GRE advanced biology test.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 0 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 0 | NO | YES | YES | YES | YES | 2 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | | | 5-6 | 5-6 | 50 | |

Other: All students are supported in full for the duration of study. Support is in the form of university fellowships, research assistantsnips, or teaching assistantships. We have almost no MS students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | | 1 | 90 | 9 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Cornell seeks to maintain strength in most major areas of ecology and evolutionary biology.

Formal Teaching/Research Arrangements with Other Institutions: Cornell is a member of the Organization of Tropical Studies.

Specialized Facilities: Numerous lands and facilitities near campus for use in teaching and research in terrestrial and aquatic ecology; experimental farms include Whipple Farm, Ecology Teaching Farm, and Hamilton Reserve; 91 experimental ponds near campus; extensive natural areas (university holdings) nearby.

**CREIGHTON UNIVERSITY**
Admissions Office
Omaha, NE 68178
402-280-2703

**DEPARTMENT OR PROGRAM:** Biology Department (8 faculty)
Contact: Dr. John F. Schalles, Dr. Harry Nickla
Telephone: 402-280-2155, 402-280-2156

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO

Other: Advanced biology GRE, B.S. in a life sciences major, general chemistry (1 yr), organic chemistry (1 yr), college physics (1 yr).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | YES | NO | YES | 0 | 12 |

Other: Thesis and non-thesis plans available; presentation of two seminars in the graduate seminar program; depth area concentration in course work and for final comprehensive exam.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 8 | 1 | 2 | 2 | 12 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 8 | | 4 | 54 | 34 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology & behavior, physiology, evolution & genetics: environmental biology; insect behavior, hibernation physiology, small mammal populations-behavior and physiology, amphibian systematics & evolution, limnology, environment-industry relationships, ecological remote sensing.

Formal Teaching/Research Arrangements With Other Institutions: Savannah River Ecology Laboratory, Iowa Lakeside Laboratory, Univ. of Nebraska Remote Sensing Labs (Lincoln & Omaha), Univ. Nebraska Cedar Point Biological Station, U.S. Dept. Agriculture, U.S. Bureau of Land Reclamation, Omaha Public Power District.

Specialized Facilities: Departmental Computer Lab (Apples, terminals to Univac 110 mainframe), Animal holding facilities, environmental and metabolic cold-room chambers, darkroom/photography lab, low-temp freezers, 3 motor boats, water and sediment sampling apparatus.

**DALHOUSIE UNIVERSITY**
Faculty of Graduate Studies
Halifax, Nova Scotia B3H 4J1 Canada
902-424-2485

**DEPARTMENT OR PROGRAM**: Department of Biology (33 faculty)
Contact: Dr. Warwick Kimmins
Telephone: 902 424 3514
Other Programs Offering Graduate Education in Ecology: Department of Oceanography (18 faculty), contact Dr. A. J. Bowen, 902-424-3557; Institute of Resources and Environment (5 faculty), contact Dr. A. J. Hanson, 902-424-3632

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Other: Honours B.Sc.; TOEFL 7550 for non-English speaking natives. U.S. applicants must possess a BS or BA in Biology. Entrance is competitive.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | YES | NO | YES | NO | 1 | 3 |
| Ph.D. | | YES | YES | NO | YES | NO | 1 | 3 |

Other: Admission to candidacy requires a defense of the thesis proposal; M.Sc. and Ph.D. preliminary exams are essay format for those enrolled in the Ph.D. program.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 10 | 2 | 2 | 18 | 15 |
| Ph.D. | | 5 | 4 | 4 | 7 | 6 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Quantitative ecology and evolution; marine ecology.

Formal Teaching/Research Arrangements with Other Institutions: Bedford Institute of Oceanography; Nova Scotia Agricultural College; Atlantic Institute of Biotechnology; National Research Council laboratories, and several others.

Specialized Facilities: Aquatron, boats, EM, good libraries, SCUBA program for biologists, easy access to varied ecosystems.

**DARTMOUTH COLLEGE**
Department of Biological Sciences
Hanover, NH 03755
603-646-2364

**DEPARTMENT OR PROGRAM:** Biological Sciences (17 faculty)
Contact: Dr. R. T. Holmes
Telephone: 603-646-3850

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: 1200 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | YES | NO | YES | YES | 1/yr | 20 |
| Ph.D. | | YES | YES | NO | YES | YES | 1/yr | 20 |

Other: Students admitted only to Ph.D. program; MS rarely given.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 0 | 3 | 3 | 0 | 0 |
| Ph.D. | 18 | 3 | 5 | 5 | 20 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | Insufficient data available. | | | | | |
| Ph.D. | 5 | 10 | 50 | | 35 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, zooplankton ecology, terrestrial plant ecology, vertebrate ecology, avian ecology, terrestrial ecosystem ecology.

Specialized Facilities: Herbarium, greenhouse, many field sites, excellent computer facilities.

**DUKE UNIVERSITY**
Graduate School Admissions, 124 Allen Building
Durham, NC 27706
919-684-3913

**DEPARTMENT OR PROGRAM**: Botany/Plant Ecology (6 faculty)
Contact: Dr. Culberson
Telephone: 919-684-3715

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Interested students should contact individual faculty members directly.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | NO | YES | NO | YES | YES | 1 | 15 |

Other: Minor subject requirement of at least 2 courses outside of department; committee certification.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 0 | 2 | 2 | 2 | 2 |
| Ph.D. | 6 | 4 | 4 | 4 | 17 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 50 | | 50 | | |
| Ph.D. | 10 | 20 | 50 | | 20 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Community ecology, physiological ecology, ecosystem ecology, population ecology.

Formal Teaching/Research Arrangements With Other Institutions: Organization for Tropical Studies (Costa Rica), University of N. Carolina, U.S. Forest Service, Nature Conservancy, N. Carolina State Parks, Highlands Biological Lab.

Specialized Facilities: Duke Phytotron, Duke Forest, Duke Marine Laboratory, herbarium, greenhouses, experimental plot, Biology library, TUC computer, minicomputers, large amount of laboratory and field instrumentation.

**DUKE UNIVERSITY**
Biological Sciences Building
Durham, NC 27706
919-684-2421

**DEPARTMENT OR PROGRAM:** Resource Ecology (13 faculty)
Contact: Dr. C. J. Richardson
Telephone: 919-684-2619

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1200 verb. & quant. combined.
Other: Ecology (1 course); statistics; math (including calculus).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | YES | YES | NO | YES | YES | 1 | 10 |

Other: Working knowledge of computer programming. In addition to the MS, we also offer a Masters of Environmental Management (MEM) with ecology emphasis.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 10 | 2 | 2 | 15 | 5 |
| Ph.D. | 10 | 15 | 3 | 4 | 25 | 5 |

Other: In the MEM program, there are about 115 students with 45 being awarded the degree annually. The program takes 2 years and students are supported on research assistantships throughout.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 34 | 38 | 12 | 12 | | 4 |
| Ph.D. | 24 | 21 | 38 | | 17 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecotoxicology, a new program offering joint degrees with medical school; forest ecology, wetland ecology.

Formal Teaching/Research Arrangements With Other Institutions: Students can take courses at Univ. of NC and NC State University while enrolled at Duke. Also graduate committees are often made up of faculty from several schools.

Specialized Facilities: Phytotron, greenhouses, Duke forest (8,500+ acres), marine labs at Beaufort N.C., modern chemistry lab, both micro- and mainframe computers, etc.

**DUKE UNIVERSITY**
Graduate Admissions
Durham, NC 27706
919-684-3913

**DEPARTMENT OR PROGRAM:** Zoology (25 faculty)
Contact: Mark Rausher
Telephone: 919-684-2295

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | YES | NO | NO | YES | 1 | 13 |
| Ph.D. | 60 | NO | YES | YES | YES | YES | 1 | 13 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | | | | | 1 |
| Ph.D. | 25 | 27 | 5 | 5 | 55 | 10 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | No data available. | | | | | |
| Ph.D. | 5 | | 90 | | 5 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population and community ecology, ecological genetics, limnology, oceanography, paleoecology.

Formal Teaching/Research Arrangements With Other Institutions: Joint committee for Ph.D. students with University of North Carolina, Chapel Hill, and with North Carolina State University, Raleigh.

Specialized Facilities: Marine Laboratory at Beaufort NC; 8,000 acre Duke forest adjacent to campus; field station on campus; Triangle Universities Computing Center; modern research building.

**EAST CAROLINA UNIVERSITY**
Graduate School, Brewster Hall
Greenville, NC 27858
919-757-6012

**DEPARTMENT OR PROGRAM:** Biology (22 faculty)
Contact: Robert R. Christian
Telephone: 919-757-6722

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Other: Advanced GRE in biology. Organic chemistry, ecology, statistics, genetics, cell biology (some courses may be taken after entrance).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | YES | YES | YES | 1 | 3 |

Other: Statistics and computer science may be substituted for language.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 20 | 3 | 3 | 2 | 30 | 10 |

Other: The above information includes all biology students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 30 | | 10 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecosystem ecology, microbial ecology, estuarine ecology, plant population ecology, wetland ecology, nutrient cycling. Ecology faculty are the most active researchers in the Biology Dept.

Formal Teaching/Research Arrangements With Other Institutions: ECU is part of the University of North Carolina system. Thesis committee members may come from other institutions.

Specialized Facilities: Close to estuaries, wetlands, and Atlantic coast. Estuarine laboratory with dorm space. Laboratory space in department is abundant. Autoanalyzer and other wet chemistry support lab; greenhouse.

**EAST STROUDSBURG UNIVERSITY**
Graduate Dean
East Stroudsburg, PA 18301

**DEPARTMENT OR PROGRAM**: Biology (13 faculty)
Contact: Dr. Richard Salch
Telephone: 717-424-3725

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO GRE Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | NO | NO | 0 | 0 |

Other. Thesis and non-thesis options available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 7 | 2 | | 7 | 8 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 75 | 10 | | 5 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, general ecology, biochemistry, physiology, ornithology.

Specialized Facilities: Greenhouse, marine science consortium, computers (mini and mainframe).

**EAST TENNESSEE STATE UNIVERSITY**
School of Graduate Studies, Box 24100A
Johnson City, TN 37614
615-929-4221

**DEPARTMENT OR PROGRAM:** Biological Sciences (15 faculty)
Contact: Fred J. Alsop
Telephone: 615-929-5321

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO
Other: Chemistry through organic.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | NO | YES | NO | 0 | 0 |

Other: Biometry, 2 seminars. A non-thesis option exists but is rarely chosen.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 1 | 2 | 3 | 15 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 25 | 10 | 60 | 5 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Field studies of freshwater benthos, fish and salamanders, plant communities.

Specialized Facilities: Herbarium, Briar Creek study site in Cherokee National Forest (trout), Bay Mountain Park Nature Reserve for aquatic research.

**EAST TEXAS STATE UNIVERSITY**
Commerce, TX 75428
214-886-5081

**DEPARTMENT OR PROGRAM:** Biological Sciences (10 faculty)
Contact: J. A. Kushlan
Telephone: 214-886-5378

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 9 | YES | YES | NO | YES | YES | 0 | 10 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 2 | 5 | 3 |

Other: A total of 7 MS students receive either teaching or research support. Duration of support is not limited.

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology; behavioral ecology.

Formal Teaching/Research Arrangements With Other Institutions: Consortium of Universities in North Texas.

Specialized Facilities: Library, field station near campus, biological reserve on campus, well-equipped laboratories.

**EASTERN KENTUCKY UNIVERSITY**
Coates Building, Box 2A
Richmond, KY 40475
606-622-2106

**DEPARTMENT OR PROGRAM:** Biological Sciences/Applied Ecology Option (17 faculty)
Contact: Dr. Sanford Jones
Telephone: 606-622-1513

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.40

GRE Required: YES
Minimum GRE Scores Required: 800 verb. & quant. combined

Other: General biology, cellular biology, genetics, physiology, field biology; supporting coursework equivalent to that of BS at EKU.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | YES | YES | YES | 0 | 0 |

Other: Course in scientific writing, seminar. Computing skills, statistics may substitute for language.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 3 | 2 | 3 | 10 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | | 70 | 10 | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Core of 3 required courses in the subject option: Environmental analysis of aquatic ecosystems, field methods in ecology, dynamics of ecosystems.

Formal Teaching/Research Arrangements With Other Institutions: Graduates may continue for Ph.D. through joint doctoral program with Univ. of Kentucky; research coursework can be obtained at Upper Cumberland Biological Station and Gulf Coast Research Laboratories (affiliation).

Specialized Facilities: Library, museum, greenhouse facilities adequate for a regional university, Tech Aqua Biol. Station, Gulf Coast Research Lab., large collection of aquatic organisms; herbarium approaching 10,000 specimens; off-campus natural areas managed by EKU Division of Natural Areas.

**EASTERN WASHINGTON UNIVERSITY**
Showalter Hall
Cheney, WA 99004

**DEPARTMENT OR PROGRAM:** Biology MS/Ecology Emphasis (15 faculty)
Contact: James Hanegan
Telephone: 509-359-2339

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO
Other: Advanced biology GRE.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

Other: Thesis defense, 3 seminar presentations.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 1 | 2 | 2 | 16 | 6 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, invertebrates, symbiosis.

Formal Teaching/Research Arrangements With Other Institutions: Washington State Univ.; Univ. of Idaho; Sundquist Marine Lab, Anacortes, WA; Regional Primate Center, Medical Lake, WA.

Specialized Facilities: Turnbull National Wildlife Refuge, with University operated lab, 3 miles from campus. Two greenhouses, growth chambers, computer terminals in several labs; boats for aquatic studies; Regional Primate Center, 10 miles away; herbarium; SEM.

**EMORY UNIVERSITY**
Dean of the Graduate School of Arts and Sciences
Atlanta, GA 30322
404-727-6036

**DEPARTMENT OR PROGRAM:** Biology Department (17 faculty)
Contact: Dr. William H. Murdy
Telephone: 404-727-4211
Other Programs Offering Graduate Education in Ecology: Human and Natural Ecology Program (14 faculty), contact Dr. H. L. Ragsdale, 404-727-4217

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Other: Inorganic chemistry, organic chemistry, physics, calculus. Three letters of recommendation.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | YES | YES | 2 | 10 |
| Ph.D. | 24 | NO | YES | NO | YES | YES | 4 | 10 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 0 | 2 | 2 | 2 | 1 |
| Ph.D. | 8 | 0 | 4 | 4 | 8 | 2 |

Other: Tuition is also provided. All students receive full support. Above figures are for ecology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 25 | 35 | 20 | | |
| Ph.D. | 15 | 30 | 30 | | 20 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Terrestrial plant and animal ecology, ecosystem analysis, nutrient cycling, population biology, evolutionary ecology, applied ecology, plant-animal interactions, forest dynamics.
Formal Teaching/Research Arrangements With Other Institutions: Teaching - GA Tech (courses jointly available). Research - Coweeta Hydrologic Laboratory (LTER) Program, Oak Ridge National Laboratory (EPRI Program), Highlands Biological Station (USFS Program; member institution), Fernbank Science Center - Atlanta.
Specialized Facilities: Herbarium, greenhouse, extensive computer facilities, biogeochemistry lab, atomic absorption spectrophotometer, anion analyzer (Auto Technicon), gel electrophoresis lab, plant secondary chemistry lab, Lullwater Biological Field laboratory.

**FIRE SCIENCE CENTRE**
University of New Brunswick, Box 4400
Fredericton, N.B. E3B 5A3 Canada
506-453-4509

**DEPARTMENT OR PROGRAM:** Fire Science Centre (6 faculty)
Contact: Dr. Ross W. Wein
Telephone: 506-453-4509

**PROGRAM REQUIREMENTS**

Entrance

Entrance requirements depend on the student's home department (usually Biology or Forest Resources, for ecology students).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | NO | YES | YES | NO | 0 | 0 |
| Ph.D. | | YES | YES | YES | YES | NO | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 3 | 4 |
| Ph.D. | | | 4 | 3 | 4 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 40 | | 20 | | 30 |
| Ph.D. | 10 | 10 | 10 | | 40 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Interdisciplinary studies in fire science, combining physical and biological aspects of the science.

Formal Teaching/Research Arrangements With Other Institutions: There are possibilities of exchanges.

Specialized Facilities: Indoor fire lab with wind tunnel and radiation panels for combustion and heat transfer experiments; 100-ha Acadian Forest Fire Science research area 30 km away; field generators, research trailers, trailer-mounted wind tunnel, portable weather stations, fine suppression equipment, fire ignition systems.

**FLORIDA INSTITUTE OF TECHNOLOGY**
150 W. University Blvd.
Melbourne, FL 32901
305-768-8027

**DEPARTMENT OR PROGRAM**: Oceanography & Ocean Engineering/Biological Oceanography (13 faculty)
Contact: Dr. Iver Duedall, Dr. Dean Norris
Telephone: 305-768-8096
Other Programs Offering Graduate Education in Ecology: Biological Sciences (11 faculty), contact Dr. Gary Wells, 305-768-8034

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES GRE Required: NO
Score: 3.30
Other: Math through calculus; invertebrate zoology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 48 | NO | YES | YES | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 3 | 2 | 3 | 10 | 3 |
| Ph.D. | 2 | 0 | 3 | 3 | 4 | 1 |

Other: Values given are for the biological oceanography program only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 70 | | | 20 | | 10 |
| Ph.D. | Insufficient data. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecology, particularly planktonic and benthonic studies.

Formal Teaching/Research Arrangements With Other Institutions: U.S. Naval Research Laboratory; Harbor Branch Foundation, involving research in marine sciences and development of tools and systems for underwater oceanographic research. Several Harbor Branch staff members are also adjunct faculty at F.I.T.

Specialized Facilities: Marine shore lab facilities; two ocean-going research vessels plus smaller boats; deep diving submersibles and support vessels of Harbor Branch Foundation; platform in Indian River lagoon; well equiped labs for physical, chemical and biological oceanography, and hydrodynamics.

**FLORIDA INTERNATIONAL UNIVERSITY**
Tamiami Campus
Miami, FL 33199
305-554-2201

**DEPARTMENT OR PROGRAM**: Biology (18 faculty)
Contact: John C. Makemson
Telephone: 305-554-3094

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | YES | YES | YES | NO | 0 | 8 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 6 | 2 | 2 | 16 | 8 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 20 | 30 | 20 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant biology, especially morphology, physiology, ecology, and biochemistry; wildlife biology; genetics; microbiology; structural biology.

Formal Teaching/Research Arrangements With Other Institutions: Shared graduate students and much faculty interaction with Fairchild Tropical Garden.

Specialized Facilities: The only state university serving Miami and surrounding areas, F.I.U. is close to the Everglades and the Florida Keys, where much fieldwork is done. F.I.U. is growing, with more faculty and facilities each year.

**FLORIDA STATE MUSEUM**
Office of the Registrar, 135 Tiyert Hall
Gainesville, FL 32611
904-392-1365

**DEPARTMENT OR PROGRAM:** Natural Sciences (20 faculty)
Contact: Dr. Norris Williams
Telephone: 904-392-1721

**PROGRAM REQUIREMENTS**

Entrance

Students register through a department of the University of Florida; entrance requirements vary with department.

Completion

Degree requirements depend on the home department in which the student is registered: Zoology, Botany, Environmental Engineering Sciences, School of Forest Resources and Conservation (includes Fisheries Biology, Wildlife Conservation and Aquatic Weed Center).

**STUDENT PROFILE**

The Florida State Museum supports several research assistantships. The number varies year-to-year and usually the assistantships are controlled by individual curators. See also specific departments of the Univ. of Florida.

**RECENT PROGRAM GRADUATES** - No data available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Tropical ecology; mammalian physiological zooarcheology;, population and community ecology; herpetology; paleoecology (both geological and biological); plant-insect interactions.

Formal Teaching/Research Arrangements With Other Institutions: The FSM has co-operative research and teaching agreements with appropriate organizations in Haiti, Dominican Republic, Ecuador, Venezuela, Guatemala, Belize, Colombia, and Bolivia.

Specialized Facilities: Systematics collections in ornithology, mammalogy, ichthyology, herpetology, zooarcheology, malacology, vertebrate paleontology, invertebrate paleontology, and plants (herbarium); Katherine Ordway preserve with several types of Florida ecosystems set aside for ecological field studies.

**FLORIDA STATE UNIVERSITY**
Office of Graduate Admissions
Tallahassee, FL 32306
904-644-3420

**DEPARTMENT OR PROGRAM**: Biological Oceanography (4 faculty)
Contact: Dr. W. Sturges
Telephone: 904-644-6700

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Other: Three letters of recommendation. Physics, general & organic chemistry, and calculus.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | NO | 0 | 0 |
| Ph.D. | 30 | YES | YES | NO | YES | NO | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 4 | 3 | 3 | 4 | 2 |
| Ph.D. | 1 | 3 | 5 | 5 | 3 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 50 | | 20 | | 5 |
| Ph.D. | 30 | 50 | | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine water-column ecology: deep-sea ecology; marine benthic ecology.

Specialized Facilities: Marine laboratory, diving locker, small boats, computerized video system, radio-isotope laboratory, supercomputer, microcomputers, current-meter facility, controlled-temperature.

**FLORIDA STATE UNIVERSITY**
Graduate Studies, Dept. of Biological Sciences
Tallahassee, FL 32306
904-644-3023

**DEPARTMENT OR PROGRAM:** Biological Science/Ecology, Organismal and Evolutionary Biology (14 faculty)
Contact: Dr. Lawrence G. Abele
Telephone: 904-644-3700

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: 1100 verb. & quant. combined

Other: Three letters of recommendation. International Students: GRE plus 600 on TOEFL.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 18 | NO | NO | YES | YES | YES | 1 | 6 |
| Ph.D. | 0 | NO | YES | YES | YES | YES | 2 | 6 |

Other: One seminar and a research prospectus required for MS; two seminars and a research proposal required for PhD.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 4 | | 3 | 9 | 8 |
| Ph.D. | 19 | 7 | | 5 | 33 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 14 | 43 | | 43 | | |
| Ph.D. | 33 | 33 | 33 | | | 1 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Biogeography, community ecology, vertebrate ecology, plant/insect interactions, ecomorphology.

**GEORGE MASON UNIVERSITY**
4400 University Drive
Fairfax, VA 22030
703-323-2105

**DEPARTMENT OR PROGRAM:** Biology/Environmental Biology-Public Policy (27 faculty)
Contact: Larry Rockwood
Telephone: 703-323-2181

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | NO | YES | 0 | 0 |
| Ph.D. | 90 | YES | YES | NO | YES | YES | 0 | 0 |

Other: Ph.D. requires an internship and five courses outside of the biology department in public affairs, economics and business.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 2 | 3 | 3 | 50 | 10 |
| Ph.D. | 2 | 1 | 3 | 5 | 20 | |

Other: This is a new program; no PhD degrees have yet been awarded.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 45 | 40 | 5 | 10 | | |
| Ph.D. | No data available; new program. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Environmental biology and public policy.

Formal Teaching/Research Arrangements With Other Institutions: U.S. Geological Survey, Smithsonian Institution, National Zoological Park.

Specialized Facilities: Electron microscope lab, animal room, controlled temperature rooms, herbarium, paleobatany lab, greenhouse, homing pigeon colony, natural areas for field work, live fish collections.

**HARVARD FOREST**
Harvard University
Petersham, MA 01366
617-724-3302

**DEPARTMENT OR PROGRAM:** M.F.S. in Forest Science (4 faculty)
Contact: Dr. John G. Torrey
Telephone: 617 724 3302

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | | | | YES | YES | | |

Other: One year of residence in program and completion of research project and thesis.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 1 | 1 | 1 | 2 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | | | 70 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Forest ecology, microbial ecology, biology of roots.

Formal Teaching/Research Arrangements With Other Institutions: Coursework and research opportunities in all other Harvard Departments; Center for Root Biology in conjunction with Yale School of Forestry.

Specialized Facilities: 3000 acre field site with 80+ years of detailed forest records; excellent library; glasshouses and growth chambers; microcomputers with link to Harvard Computer Center; excellent equipment for anatomical and morphological studies.

**HARVARD UNIVERSITY**
20 Oxford Street
Cambridge, MA 02138
617-495-5230

**DEPARTMENT OR PROGRAM:** Dept. of Organismic and Evolutionary Biology (37 faculty)
Contact: Prof. R. M. Woollacott
Telephone: 617-495-1755

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: competitive — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | | NO | YES | YES | YES | YES | 1 | 10 |

Other: Two languages.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | | | 6 | 6 | 20 | 3 |

Other: All PhD students accepted receive a comprehensive six-year package of support.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | | | 80 | | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Evolutionary ecology, behavior, plant physiological ecology, plant population biology, community ecology.

Specialized Facilities: Excellent libraries, herbaria, museums, excellent field sites, computers, first class glasshouse and growth chamber facilities, very well equipped labs, arboretum, Harvard Forest, Museum of Comparative Zoology, Botanical Museum.

**HOWARD UNIVERSITY**
Graduate School of Arts and Sciences
Washington, DC 20059

**DEPARTMENT OR PROGRAM:** Zoology (15 faculty)
Contact: Dr. C. Lee
Telephone: 202-636-6933
Other Programs Offering Graduate Education in Ecology: Botany (12 faculty), contact Dr. L. Frederick, 202-636-6929

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 72 | YES | YES | YES | YES | YES | 0 | 0 |

Other: Residency requirements: MS-1 yr; Ph.D.-4 semesters, of which 2 must be consecutive.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 0 | 4 | 4 | 10 | 2 |
| Ph.D. | | 0 | 5 | 5 | 15 | 3 |

Other: The are 13 teaching assistantships available for MS and PhD students combined.

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioral ecology, especially influence of social behavior on patterns of resource use; chemical ecology, especially chemical communication of arthropods, and biochemical effects of trace metals; physiological ecology of plants with emphasis on salt-tolerant species.

Specialized Facilities: Fully equipped library, greenhouse, and computer facilities on campus; Howard University Beltsville Campus, a 104 acre site for field research in the DC area. Access to NIMH, NIH, US National Museum of Natural History, US National Zoo (Smithsonian Institution), USDA.

**IDAHO STATE UNIVERSITY**
Office of Registration/Admissions/Records, Box 8196
Pocatello, ID 83209
208-236-2661

**DEPARTMENT OR PROGRAM:** Botany/Zoology/Ecology (25 faculty)
Contact: Rod R. Seeley
Telephone: 208-236-3765

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.75
GRE Required: YES
Minimum GRE Scores Required:
50th percentile on verb. & quant.

Other: Organic chemistry, genetics, calculus, physics, cell biology, organic evolution, general ecology; for the PhD, a GPA of 3.0 is required; acceptance by a faculty member; three letters of recommendation.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | YES | YES | NO | 0 | 0 |
| Ph.D. | | NO | YES | YES | YES | YES | 0 | 0 |

Other: A research tool may substitute for a language.

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 0 | 2 | 2 | 40 | 5 |
| Ph.D. | 8 | 0 | 3 | 3 | 12 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 30 | | 20 | | 30 |
| Ph.D. | 10 | 10 | 50 | | 10 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Stream ecology, plant physiological ecology, population ecology of small mammals, avian ecology, plant/animal interactions.

Formal Teaching/Research Arrangements With Other Institutions: National Parks Service, National Forest Service, Bureau of Land Management, Idaho Fish and Game Commission, Idaho Nuclear Engineering Laboratory (U.S. D.O.E.).

Specialized Facilities: Idaho Museum of Natural History, Ray J. Davis Herbarium, Stream Ecology Center.

**INDIANA STATE UNIVERSITY**
Dean of the School of Graduate Studies
Terre Haute, IN 47809
812-237-3111

**DEPARTMENT OR PROGRAM:** Department of Life Sciences (30 faculty)
Contact: William J. Brett
Telephone: 812-237-2400

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Other: Physiology, ecology, genetics, microbiology, organic chemistry, physics, calculus or statistics (deficiences may be made up.)

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 18 | YES | NO | NO | NO | YES | 0 | 0 |
| Ph.D. | 83 | YES | YES | NO | YES | YES | 2 | 6 |

Other: A research tool (a language, statistics, or computer programming) is required. An MA, which requires a thesis, is also available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | | 2 | 2 | 7 | 4 |
| Ph.D. | 5 | | 5 | 5 | 5 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 20 | 20 | 30 | | 20 |
| Ph.D. | 10 | 20 | 50 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecophysiology and temperature regulation; food habits and parasites of vertebrates; vegetation structure and dynamics; natural area and endangered species ecology; avian ecology and behavior.

Specialized Facilities: 10,000-specimen herbarium; excellent vertebrate collections, (midwestern U.S.); 5 field study sites owned by ISU, from 8 to 80 acres; good teaching, research, library and computer facilities.

**INDIANA UNIVERSITY**
School of Public and Environmental Affairs
Bloomington, IN 47405
812-335-9485

**DEPARTMENT OR PROGRAM:** Environmental Programs (12 faculty)
Contact: David Willard
Telephone: 812-335-9485
Other Programs Offering Graduate Education in Ecology: Biology/Ecology Program (14 faculty), contact Craig Nelson, 812-335-1345

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO
Other: Calculus, statistics, computer programming, introductory chemistry.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 48 | YES | NO | NO | | NO | 0 | 12 |
| Ph.D. | 90 | NO | YES | NO | YES | YES | 0 | 12 |

Other: For the MS there is a professional experience requirement: option of internship or research and thesis.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 8 | 2 | 2 | 50 | 20 |
| Ph.D. | 2 | 2 | 3 | 3 | 4 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 40 | 40 | | 10 | | 10 |
| Ph.D. | New program; no graduates yet. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Environmental science/environmental policy, applied ecology; water resources; environmental chemistry.

Formal Teaching/Research Arrangements With Other Institutions: Environmental Sciences Division, Oak Ridge National Laboratory; Indiana Department of Environmental Management.

Specialized Facilities: Aerial photography equipment and a small airplane; small boats, wide range of terrestrial and aquatic field sampling equipment; microcomputers, spectrophotometers, gas chromatographs, mass spectrometers, adiabatic bomb calorimeter, new building.

**JAMES MADISON UNIVERSITY**
The Graduate School
Harrisonburg, VA 22807
703-568-6466

**DEPARTMENT OR PROGRAM:** Biology (18 faculty)
Contact: Dean Cocking
Telephone: 703-568-6225

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.90
GRE Required: YES
Minimum GRE Scores Required: YES
Verb. 400, Quant. 460

Other: GRE Advanced Biology Test (33rd percentile); botany, zoology, genetics, ecology, physiology or molecular biology, general and organic chemistry with lab; three letters of recommendation.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 15 |

Other: 1 credit hr. of research publication methods course.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 0 | 2 | 2 | 11 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 21 | 21 | 29 | 21 | 8 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant community ecology; population biology; microbial ecology; ecotoxicology; physiological animal ecology; insect ecology.

Specialized Facilities: VAX mainframe, IBM and MacIntosh microcomputers; 450,000 volume library and good interlibrary loan service; herbarium; arboretum; growth chambers and greenhouse; HPLC, AA, ultracentrifuge, cold room, lyophilizer, electrophoresis equipment, etc.

**KANSAS STATE UNIVERSITY**
Ackert Hall (Attn. Grad. Selection Comm.)
Manhattan, KS 66506
913-532-6615

**DEPARTMENT OR PROGRAM:** Biology (43 faculty)
Contact: Terry C. Johnson
Telephone: 913-532-6615

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 22 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 24 | NO | YES | NO | YES | YES | 1 | 15 |

Other: Qualifying exam for Ph.D. is the preparation of a research proposal.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 3 | 12 | 3 |
| Ph.D. | | | 3 | 4 | 7 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 23 | 38 | 8 | 23 | | 8 |
| Ph.D. | 22 | 11 | 22 | | 22 | 22 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Grassland ecology, vertebrate ecology, limnology, plant systematics.

Specialized Facilities: 3500-ha Konza Prairie Research Natural Area (a Nature Conservancy site administered by the Divison of Biology) within a few miles of campus.

**KANSAS STATE UNIVERSITY**
Anderson Hall 119
Manhattan, Kansas 66506
913-532-6250

**DEPARTMENT OR PROGRAM**: Entomology/Insect Ecology & Behavior (21 faculty)
Contact: R.G. Helgesen
Telephone: 913-532-6154

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Minimum GRE Scores Required: NO

Other: We expect a GPA of 3.0 and competitive GRE scores, but do not place an absolute minimum on either. Evidence of proficiency in English for international students.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | NO | YES | NO | YES | YES | 0 | 0 |

Other: Presentation of departmental seminar.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 14 | 2 | 2 | 15 | 4 |
| Ph.D. | 1 | 14 | 4 | 4 | 15 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | | | 80 | | |
| Ph.D. | 10 | 10 | 70 | | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant resistance to insects (arthropod ecology, behavior and physiology relating to plant resistance); insect ecology and behavior (life history adaptations including dispersal and dormancy, feeding behavior, host-selection, oviposition behavior).

Formal Teaching/Research Arrangements With Other Institutions: US Dept. of Agriculture.

Specialized Facilities: Field stations; insectiaries; greenhouses; environmental chambers; radio-isotope lab; SEM; computer lab with micros, printers, color plotter, mainframe terminals; museum with research insect collection; controlled humidity rooms for rearing insects.

**KENT STATE UNIVERSITY**
BSCI Graduate Studies, Cunningham Hall
Kent, OH 44242
672-2819

**DEPARTMENT OR PROGRAM:** Biological Sciences/Ecology (22 faculty)
Contact: Dr. Keith L. Ewing
Telephone: 672-3614

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO
Other: 1 year each of calculus, physics, organic chemistry with lab; 2 years of biology including genetics and general ecology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | YES | NO | NO | YES | YES | 4 | 10 |
| Ph.D. | 60 | YES | YES | NO | YES | YES | 8 | 10 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 12 | 1 | 2 | 2 | 24 | 5 |
| Ph.D. | 5 | 0 | 4 | 4 | 10 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 12 | 25 | 20 | 38 | | 5 |
| Ph.D. | 16 | 33 | 33 | | 16 | 2 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology with emphasis in the following: biochemical limnology, lake management, eutrophication and lake restoration.

Specialized Facilities: Many protected natural areas.

**LAVAL UNIVERSITY**
Bureau du Registraire
Quebec, QC, Canada, GIK 7P4
418-656-3080

**DEPARTMENT OR PROGRAM:** Biology (12 faculty)
Contact: Yvon LaFlamme
Telephone: 418-656-2293

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00
Other: Baccalaureate degree.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 180 | NO | YES | YES | YES | NO | 0 | 0 |
| Ph.D. | 90 | NO | YES | YES | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 10 | 1 | 3 | 25 | 6 |
| Ph.D. | 2 | 5 | 2 | 5 | 15 | 3 |

Other: All students receive scholarships.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 35 | 40 | | 20 | | 5 |
| Ph.D. | 10 | 60 | 20 | | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Mychorizae, photobiology, nitrogen fixation, phytosociology.

Specialized Facilities: Well equipped in most respects; the department has created a new "Forest Biology Research Center."

**LONG ISLAND UNIVERSITY**
C. W. Post Campus
Greenvale, NY 11548
516-299-2417

**DEPARTMENT OR PROGRAM:** Biology/Ecology (4 faculty)
Contact: Prof. Margaret Hertz
Telephone: 516-299-2481

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.75

GRE Required: YES
Minimum GRE Scores Required: 50th percentile verb. & quant.

Other: 6 biology courses, calculus (1 yr), physics (1 yr), 2 yrs. of chemistry including organic chemistry. Two letters of recommendation.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 36 | YES | YES | NO | YES | NO | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 8 | 0 | 2 | 3 | 20 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 40 | 20 | | | 40 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Terrestrial ecology: plant ecology and plant systematics; aquatic ecology; ichthyology.

Specialized Facilities: Herbarium, greenhouses, zoological collections, modern computer facility.

**LOUISIANA STATE UNIVERSITY**
Admissions Office
Baton Rouge, LA 70803
504-388-2311

**DEPARTMENT OR PROGRAM**: Botany (10 faculty)
Contact: Dr. Tom Moore
Telephone: 504-388-8485
Other Programs Offering Graduate Education in Ecology: Zoology (21 faculty), contact Dr. Tom Dietz, 504-388-1132; Marine Sciences (18 faculty), contact Dr. William Wiseman, 504-388-6307.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.75

GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 45 | YES | YES | YES | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 3 | 3 | | |
| Ph.D. | | | 4 | 4 | | |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Estuarine & coastal ecology; tropical ecology; ecophysiology.

Formal Teaching/Research Arrangements With Other Institutions: Formal affiliation with Gulf Coast Research Laboratory, Ocean Springs, MS; and with Louisiana Universities' Marine Consortium, Chadwin, LA.

Specialized Facilities: Museum of Natural History; herbarium; marine facilities of Gulf Coast Marine Laboratory.

**MCNEESE STATE UNIVERSITY**
Registrar's Office
Lake Charles, LA 70609
318-437-5147

**DEPARTMENT OR PROGRAM:** Biological and Environmental Sciences (18 faculty)
Contact: L. Harold Stevenson
Telephone: 318-437-5674

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.50
Other: Entrance screening exam.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 36 | YES | YES | NO | YES | YES | 0 | 12 |

Other: For M.S. in Biology student must take GRE in first semester. For the MS in Environmental Science there is no GRE requirement.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 0 | | | 30 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 80 | | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Biology strengths are in aquatic and marine ecology, and estuarine ecology; environmental science strengths are in environmental education of evening school students from chemical industries of the area.

Formal Teaching/Research Arrangements With Other Institutions: Louisiana Universities' Marine Consortium.

Specialized Facilities: Easy access to freshwater, estuarine and marine habitats in immediate area; University has access to numerous field vehicles and boats.

**MEMORIAL UNIVERSITY**
Graduate Studies, Carew Bldg.
St. John's, Newfoundland A1B 3X9 Canada
709-737-8201

**DEPARTMENT OR PROGRAM:** Biology (50 faculty)
Contact: Graduate Officer
Telephone: 709-737-7497

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00
Other: Honours degree or equivalent.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 3 | YES | NO | NO | YES | NO | 0 | 0 |
| Ph.D. | 0 | NO | NO | NO | YES | NO | 0 | 0 |

Other: Ph.D. comprehensive exam.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 40 | 12 |
| Ph.D. | | | 3 | 3 | 10 | 3 |

Other: Course demonstrators and fellowships are awarded on a competitive basis. Bursaries are available on the basis of need. Citizenship may influence the ability to successfully compete for awards.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 25 | | 20 | | 30 |
| Ph.D. | | 40 | 10 | | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine biology, systematics, evolutionary ecology.

Specialized Facilities: Boats for inshore marine studies; field station on the ocean; up-to-date computing facilities; modern library with extensive holdings; herbaria; controlled environment growth chambers; ready access to boreal, freshwater and marine ecosystems.

**MEMPHIS STATE UNIVERSITY**
Office of Admissions
Memphis, TN 38152
901-454-2911

**DEPARTMENT OR PROGRAM:** Biology/Vertebrate Biology (11 faculty)
Contact: James Payne
Telephone: 901-454-2955

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES Score: 2.50
GRE Required: YES
Minimum GRE Scores Required: verb. 400, quant. 400.

Other: For the PhD, a combined verbal and quantitative score of at least 1000 is required with neither score being less than 400.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 20 |
| Ph.D. | 57 | YES | YES | YES | YES | YES | 0 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 11 | 1 | 2 | | 42 | 6 |
| Ph.D. | 11 | 1 | 3 | | 19 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 18 | | | 78 | | 4 |
| Ph.D. | | 17 | 16 | | 50 | 17 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Evolutionary, behavioral, physiological, and general ecology.

Formal Teaching/Research Arrangements With Other Institutions: Gulf Coast Research Laboratory, Oak Ridge Associated Universities, Charles Darwin Research Station (Galapogos Islands, Ecuador), National Center for Toxicological Research in Pine Bluff, Ark.

Specialized Facilities: Three buildings house ecological research. The department has two greenhouses, the Newan Biological Field Station, a good regional mammal collection and herbarium. Microcomputers are widely available to students and faculty.

**MIAMI UNIVERSITY**
Graduate School
Oxford, OH 45056
513-529-4125

**DEPARTMENT OR PROGRAM:** Botany (13 faculty)
Contact: Dr. W. Hardy Eshbaugh
Telephone: 513-529-4200

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.50
Other: GRE strongly suggested; three letters of recommendation required.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 1 | 20 |
| Ph.D. | 60 | YES | NO | YES | YES | YES | 1 | 20 |

Other: Extra-departmental minor (8 hrs.); alternatives to the foreign language requirement may be approved by the committee or department.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 2 | 2 | 2 | 7 | 4 |
| Ph.D. | 3 | 1 | 4 | 4 | 4 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 20 | 20 | 30 | | 10 |
| Ph.D. | 20 | 25 | 30 | | 20 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological ecology of N fixation and mycorrhizae, succession mechanisms, forest dynamics, and vegetation analysis.

Specialized Facilities: 42-ha Ecology Research Center with forest, prairie, old fields, and agricultural fields; proximity to 67-ha old growth beech-maple forest; A.W. Kuchler's vegetation maps; herbarium with modest research travel funds for community ecology studies.

**MIAMI UNIVERSITY**
The Graduate School, 102 Roudebush
Oxford, OH 45056
513-529-4125

**DEPARTMENT OR PROGRAM:** Zoology/Ecology (25 faculty)
Contact: Dr. Robert G. Sherman
Telephone: 513-529-3100
Other Programs Offering Graduate Education in Ecology: Institute of Environmental Sciences/Applied Ecology (2 faculty), contact Gene Willeke, 513-529-5811.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.80
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | YES | YES | YES | 2 | 9 |
| Ph.D. | | YES | YES | YES | YES | YES | 2 | 9 |

Other: Contact specific program for details.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 2 | 30 | |
| Ph.D. | | | | 4 | 30 | |

Other: Students are supported throughout their program.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 30 | | 45 | | |
| Ph.D. | 20 | 30 | 50 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Strong liberal arts/basic research programs in botany and zoology with program strength in applied ecology; unique interdisciplinary Environmental Science (M. En.) degree through the Institute of Environmental Sciences (Applied Ecology concentration).

Formal Teaching/Research Arrangements With Other Institutions: Formal internship agreements with national labs (e.g., Oak Ridge) and government agencies (e.g., US EPA).

Specialized Facilities: Ecology research center with diverse habitats, labs, and experimental plots; new biological sciences building with modern greehouses, environmental control rooms and ecological research labs; excellent computer, field monitoring and lab equipment.

**MICHIGAN STATE UNIVERSITY**
Admissions Office
East Lansing, MI 48824
517-355-8332

**DEPARTMENT OR PROGRAM:** Zoology (6 faculty)
Contact: William E. Cooper
Telephone: 517-355-4640

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | NO | YES | NO | | YES | 0 | 9 |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 9 |

Other: Thesis and non-thesis options both available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 2 | 4 | 4 | 20 | 3 |
| Ph.D. | 17 | 5 | 4 | 5 | 40 | 4 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology.

Specialized Facilities: Field station with library; greenhouses; computers.

**MICHIGAN TECHNOLOGICAL UNIVERSITY**
Admissions Office
Houghton, MI 49931
906-487-2335

**DEPARTMENT OR PROGRAM:** Biological Sciences
Contact: Bertwell K. Whitten
Telephone: 906-487-2025

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 0 | NO | YES | YES | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 5 | 2 | 2 | 16 | 6 |
| Ph.D. | | 4 | 3 | 4 | 4 | 1 |

Other: There are a total of 12 teaching assistantships available to all Biology applicants.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 35 | 35 | | 20 | | 10 |
| Ph.D. | New program. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: All aspects of aquatic ecology.

Formal Teaching/Research Arrangements With Other Institutions: Joint Ph.D.-level program with Central Michigan University in Biology.

Specialized Facilities: Wet lab, boats for aquatic work (including open waters of Lake Superior); extensive involvement with Isle Royale National Park, an International Biosphere Reserve; full complement of mainframe and microcomputers plus advanced graphics lab.

**MIDDLEBURY COLLEGE**
Department of Biology
Middlebury, VT 05753
802-388-3711

**DEPARTMENT OR PROGRAM:** Biology (8 faculty)
Contact: C. R. Landgren
Telephone: 802-388-3711

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 36 | NO | NO | NO | YES | NO | 1 | 10 |

Other: Public presentation of thesis research; thesis defense; year in residence.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | | 2 | | 2 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 35 | | | 15 | 50 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant/herbivore interactions, quantitative ecology, modeling.

Specialized Facilities: High Pond Field Station, Abbey Pond Reserve, several thousand mountain acres near Green Mountain National Forest, variety of aquatic habitats, greenhouse, animal and plant rooms, unlimited free computer access.

**MILLERSVILLE UNIVERSITY**
Graduate Studies Office
Millersville, PA 17551
717-872-3099

**DEPARTMENT OR PROGRAM:** Biology (16 faculty)
Contact: Dr. Samuel J. Ha
Telephone: 717-872-3409

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | | YES | 0 | 0 |

Other: Thesis and non-thesis plans available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 2 | 2 | 5 | 12 | 2 |

Other: This program mainly serves high school teachers who want additional course work and thus is not a traditional degree program.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 30 | 30 | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Freshwater and marine biology; vertebrate terrestrial ecology. Our program mainly serves high school teachers and environmental consultants who want additional course work and experience.

Formal Teaching/Research Arrangements With Other Institutions: Research arrangments in terrestrial ecology with Powdermill Biological Station of the Carnegie Museum of Natural History (Pittsburgh).

Specialized Facilities: Three greenhouses; plant growth chambers; extensive herbarium with all local flora; research pond on campus for limnological research; marine biological field station at Wallops Island, VA; Keever Ecological Study Area (1 ha) on campus.

**MISSISSIPPI STATE UNIVERSITY**
111 Allen Hall
Mississippi State, MS 39762
601-325-2224

**DEPARTMENT OR PROGRAM:** Dept. of Wildlife and Fisheries (10 faculty)
Contact: Dr. Dale Arner
Telephone: 601-325-3830
Other Programs Offering Graduate Education in Ecology: Biological Sciences, contact Dr. L. Brown (acting), 601-325-3120.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES GRE Required: YES
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | YES | YES | YES | YES | YES | 2 | 10 |

Other: For the Ph.D., 3 years of coursework are required.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 7 | 2 | 2 | 7 | 0 |
| Ph.D. | 0 | 2 | 3 | 3 | 2 | 0 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 50 | | 25 | | |
| Ph.D. | | 50 | 50 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population ecology, behavioral ecology, waterfowl ecology, wildlife diseases, game management, fisheries ecology.

Specialized Facilities: Large (10-15 acre) enclosures for deer research, pen complexes for medium sized carnivore research, large (0.25-5.0 acre) ponds, cooperative agreements for field research in public lands in Mississippi.

**MONTANA STATE UNIVERSITY**
Admissions Office
Bozeman, MT 59715
406-994-2452

**DEPARTMENT OR PROGRAM:** Biology (23 faculty)
Contact: Peter F. Brussard
Telephone: 406-994-4548

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | NO | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | | NO | YES | NO | YES | YES | 1 | 8 |

Other: Specific requirements are determined by each student's committee.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 20 | 2 | 3 | 30 | 10 |
| Ph.D. | 5 | 2 | 3 | 5 | 8 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 70 | | 10 | | 10 |
| Ph.D. | | 60 | 20 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Conservation biology and environmental modeling; aquatic ecology; fish and wildlife management.

Formal Teaching/Research Arrangements With Other Institutions: PhD in Conservation Biology with University of California, San Diego.

Specialized Facilities: 3 buildings, one new and elegant; library good, computer equipment improving all the time; new controlled environment facility; excellent access to fieldwork in northern Rockies and Great Plains.

**MOUNT ALLISON UNIVERSITY**
Registrar
Sackville, N.B., E0A 3C0; Canada
506-536-2040

**DEPARTMENT OR PROGRAM:** Biology (9 faculty)
Contact: Dr. C. G. Paterson
Telephone: 506-536-2040

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: ?.8
Other: B.Sc. Honours degree or equivalent.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 6 | NO | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 2 | 2 | 3 | 4 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 10 | 50 | | 40 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Microbial ecology, freshwater ecology, behavioral ecology, marine ecology.

Specialized Facilities: Sea lab; aquatic facility with freshwater and seawater supply; artificial stream systems; boat for collecting marine fishes and invertebrates.

**NEW MEXICO STATE UNIVERSITY**
Graduate School, Box 3G
Las Cruces, New Mexico 88003
505-646-2736

**DEPARTMENT OR PROGRAM:** Biology (22 faculty)
Contact: Gary L. Cunningham
Telephone: 505-646-3611
Other Programs Offering Graduate Education in Ecology: Animal & Range Sciences (21 faculty), contact Bobby J. Rankin, 505-646-2515.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | NO | NO | NO | YES | YES | 1 | 20 |
| Ph.D. | 90 | NO | YES | NO | YES | YES | 1 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 30 | 20 | 2 | 2 | 40 | 10 |
| Ph.D. | 20 | 10 | 4 | 4 | 30 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 30 | 10 | 30 | | 10 |
| Ph.D. | 10 | 20 | 30 | | 30 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Desert and arid lands ecology, plant physiological ecology, population ecology, ecosystem studies, plant community ecology, stream and reservoir ecology.

Formal Teaching/Research Arrangements With Other Institutions: Cooperative programs with Blaustein Institute for Desert Research, Isreal.

Specialized Facilities: Greenhouses; environmental chambers; herbarium; vertebrate and entomological collections; desert, grassland, and forest field stations; micro-, mini-, and mainframe computers; electron microscope laboratory.

**NEW MEXICO STATE UNIVERSITY**
Graduate School, Box 3G
Las Cruces, New Mexico 88003
505-646-2736

**DEPARTMENT OR PROGRAM:** Fisheries and Wildlife Sciences (7 faculty)
Contact: Dr. C. A. Davis
Telephone: 505-646-1544

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | NO | 0 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 8 | 2 | 2 | 21 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 70 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Focus on Chihuahuan desert, pinyon juniper, riverine, riparian, ponderosa pine and mixed conifer ecosystems.

Formal Teaching/Research Arrangements With Other Institutions: Participate in interdisciplinary Ph.D. program with Depts. of Range Science and Biology; close working arrangements with state and federal natural resource agencies.

Specialized Facilities: New building with well equipped research laboratories; field equipment such as boats, telemetry, etc. available.

**NEW YORK BOTANICAL GARDEN**
Box AB
Millbrook, NY 12545
914-677-5343

**DEPARTMENT OR PROGRAM**: Institute of Ecosystem Studies (16 faculty)
Contact: Dr. Gene E. Likens
Telephone: 914-677-5343

**PROGRAM REQUIREMENTS**

Entrance

As a division of the New York Botanical Garden, we do not grant degrees directly, but offer numerous opportunities for graduate study through cooperating universities. Entrance requirements depend on the affiliated institution.

Completion

Requirements depend on affiliated institutions.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 0 | 2 | 5 | 3 | 2 | 0 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Anthropogenic landscape disturbance and recovery; ecosystem analysis and management (insect outbreaks; integrated plant and animal population management; nutrient cycling; productivity); long-term study of disturbance and recovery.

Formal Teaching/Research Arrangements With Other Institutions: Joint Program in Ecosystem Studies with Yale University; individually arranged graduate study through Cornell University, Rutgers University, and elsewhere.

Specialized Facilities: 778 ha. field site (Mary Flagler Cary Arboretum) with diverse habitats; state-of-the-art laboratories for organic and inorganic chemistry; herbarium of local flora; extensive greenhouse-nursery complex; personal and mainframe computers; surveying and darkroom facilities; Class A weather station.

**NORTH CAROLINA STATE UNIVERSITY**
Admissions
Raleigh, NC 27650
919-737-2437

**DEPARTMENT OR PROGRAM:** Ecology Program (47 faculty)
Contact: A. G. Wollum
Telephone: 919-737-2389

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

Other: A minor in ecology is offered at the Ph.D. level.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 0 | | 2 | 4 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | | 50 | | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: General ecology, population ecology, limnology, marine science, behavior, microbial ecology, terrestrial ecology, physiological ecology, mathematical ecology, applied ecology, forestry, entomology.

Formal Teaching/Research Arrangements with other Institutions: Students may take courses and have advisory committee members from Duke University or UNC-Chapel Hill. Member, Highlands Biological Station and Organization for Tropical Studies.

Specialized Facilities: One million volume library, excellent computer facility, herbarium, many greenhouses, local field sites.

**NORTH CAROLINA STATE UNIVERSITY**
Peele Hall
Raleigh, NC 27650
919-737-2873

**DEPARTMENT OR PROGRAM:** Entomology/Insect Ecology (7 faculty)
Contact: Ron Kuhr/Fred Gould
Telephone: 914-737-2638

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 1200 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 16 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 4 | | 2 | 4 | 2 |
| Ph.D. | 2 | 9 | | 3 | 12 | 4 |

Other: Students are supported throughout their entire program.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | | | 50 | | |
| Ph.D. | 25 | 20 | 25 | | 25 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Our major strength is in combining theoretical, basic (empirical), and applied subject matter on the population biology of beneficial and pestiferous insects.

Formal Teaching/Research Arrangements With Other Institutions: Students can take courses at Duke University or UNC at Chapel Hill.

Specialized Facilities: Good lab greenhouse facilities; use of 15 field sites throughout the state; field vehicles; computer facilities includind mainframe, super-micros and microcomputers.

**NORTH DAKOTA STATE UNIVERSITY**
Admissions
Fargo, ND 58105
701-237-8643

**DEPARTMENT OR PROGRAM:** Zoology (8 faculty)
Contact: J. D. Brammer
Telephone: 701-237-8133
Other Programs Offering Graduate Education in Ecology: Botany/Biology (7 faculty), contact D. S. Gaiitz, 701-237-7226.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO
Other: Requirements for the undergraduate major must be met.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | | YES | 1 | 20 |
| Ph.D. | | NO | YES | NO | YES | YES | 1 | 20 |

Other: Individualized programs for each degree. For the MS, thesis and nonthesis options are available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 5 | 2 | 2 | 10 | 4 |
| Ph.D. | 3 | 5 | 2 | 4 | 5 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 70 | | 20 | | 10 |
| Ph.D. | | 25 | 50 | | 25 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Wildlife ecology; fisheries management; limnology and wetland ecology; environmental physiology.

Formal Teaching/Research Arrangements With Other Institutions: Much cooperative research is arranged with state and federal agencies, especially in aquatic, wetland, and wildlife research.

Specialized Facilities: Field and laboratory equipment to support research in aquatic and terrestrial ecology and physiology.

**NORTHEASTERN UNIVERSITY**
Admissions, 150 Richards
Boston, MA 02115
617-437-2200

**DEPARTMENT OR PROGRAM:** Biology (25 faculty)
Contact: David H. Wharton
Telephone: 617-437-2259

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO

Other: General biology, genetics, cell physiology and biochemistry, ecology, math through beginning calculus, 1 yr physics, chemistry through organic chemistry.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 27 | YES | NO | NO | YES | YES | 0 | 20 |
| Ph.D. | | NO | YES | YES | YES | YES | 3 | 20 |

Other: Comprehensive exam in two areas, one full year residency.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 12 | 3 |
| Ph.D. | | | 4 | 4 | 1 | 1 |

Other: There are about 25 teaching and 9 research assistantships for the entire Biology Dept.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | | | 25 | | 25 |
| Ph.D. | 25 | | 25 | | 25 | 25 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Saltmarsh, estuarine subtidal, and rocky shore ecological studies.

Specialized Facilities: Large (210,000 sq ft) greenhouse; Marine Science and Maritime Studies Center, Nahant, MA. with 38' research vessel, AA, HPLC, wet lab, library, darkroom; a variety of field areas; arboretum; herbarium & vertebrate collections in the Museum of Natural History; Autotechnicon; electron microscopy center.

**NORTHERN ARIZONA UNIVERSITY**
Graduate College, Box 4125
Flagstaff, AZ 86011
602-523-4348

**DEPARTMENT OR PROGRAM:** School of Forestry (15 faculty)
Contact: Dean L. D. Garrett
Telephone: 602-523-3031

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 2.50
GRE Required: YES — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 7 | 2 | 2 | 14 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 10 | 10 | | 30 | 50 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Fire effects; nutrient cycling; competition; plant population dynamics; productivity; succession; community classification; host plant insect interactions; insect ecology; mechanisms of pest resistance.

Formal Teaching/Research Arrangements With Other Institutions: USFS greenhouses and forest lands are available in cooperative agreements.

Specialized Facilities: Chemical analysis laboratory; school forest; Measuronix; personal computers and mainframes available for student use; library is centralized for entire university.

**NORTHWESTERN UNIVERSITY**
The Graduate School
Evanston, IL 60201

**DEPARTMENT OR PROGRAM:** Ecology & Evolutionary Biology Dept. (6 faculty)
Contact: Andrew J. Beattie
Telephone: 312-491-5522

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: 80th percentile verb. & quant.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | | NO | NO | NO | YES | YES | 4 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | | | 4 | 5 | 4 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| Ph.D. | 10 | | 40 | 25 | 25 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Theoretical, experimental, and field approaches to invertebrate, plant, and microbial ecology.

Formal Teaching/Research Arrangements With Other Institutions: Field Museum of Natural History - Chicago.

Specialized Facilities: Research labs, library, greenhouses, computers (mini and mainframe).

**OAKLAND UNIVERSITY**
Graduate Admission, 202 Wilson Hall
Rochester, MI 48063
313-370-3166

**DEPARTMENT OR PROGRAM:** Biological Sciences (20 faculty)
Contact: George J. Gamboa
Telephone: 313-370-3575

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO

Other: 20 credits in biology, 8 credits in mathematics, 15 credits in chemistry, 8 credits in physics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 36 | YES | NO | NO | YES | NO | 0 | 0 |

Other: Evolution, Ecology, and Behavior track: 8 credits thesis, four 3 credit topics courses in ecology, 4 credit graduate biology course, 12 credits of cognates, thesis.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 5 | 2 | 2 | 20 | 4 |

Other: The figures above are for the entire Biology Dept. Of about 20 M.S. Biology students, 2-4 are in the Ecology, Evolution, and Behavior track.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 50 | | | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Cellular and molecular biology, behavioral ecology, population biology.

Formal Teaching/Research Arrangements With Other Institutions: Teaching and research ties with Cranbrook Science Institute and Wayne State University.

Specialized Facilities: Environmental chambers, video equipment, motion analyzers, high speed movie cameras, insect rearing rooms and excellent computer facilities. Largely natural 1,800 acre campus is ideally suited for ecological research.

**OHIO STATE UNIVERSITY**
Lincoln Tower, 1800 Cannon Dr.
Columbus Ohio 43210
614-292-5995

**DEPARTMENT OR PROGRAM:** Botany Department (24 faculty)
Contact: Daniel J. Crawford
Telephone: 614-292-8952

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Calculus, physics, genetics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | | YES | | 20 |
| Ph.D. | 100 | YES | YES | NO | YES | YES | 3 | 20 |

Other: Thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 1 | 3 | 3 | 10 | 3 |
| Ph.D. | 18 | 3 | 4 | 4 | 22 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 29 | 29 | | 29 | | 13 |
| Ph.D. | No information available. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Evolution, ecosystem ecology, nutrient cycling, population ecology, mycorrhizae, forest community ecology.

Formal Teaching/Research Arrangements With Other Institutions: Internships available with government agencies and with Batelle Memorial Institute.

Specialized Facilities: Extensive herbarium, greenhouse complex, library in the building, access to Neotoma and Stone Laboratory Field Stations; SEM and TEM, HPLC/AA/ICP available.

**OHIO STATE UNIVERSITY**
Admissions Office, 1800 Cannon Drive
Columbus, Ohio 43210
614-292-2265

**DEPARTMENT OR PROGRAM:** School of Natural Resources/Resource Ecology Program (4 faculty)
Contact: C. B. David
Telephone: 614-292-2265
Other Programs Offering Graduate Education in Ecology: School of Natural Resources/Environmental Science and Management Program (5 faculty), contact C. B. David, 614-292-2265; School of Natural Resources/Forestry Department (10 faculty), contact C. B. David, 614-292-2265.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES GRE Required: YES
Score: 2.50 Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 4 | 2 | 2 | 30 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | | 50 | | | 50 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Wetland ecology, systems ecology, applied ecology/environmental management, forest resources/fish and wildlife management.

Specialized Facilities: Microcomputer facilities, field equipment, field stations, wet laboratory.

**OHIO STATE UNIVERSITY**
Admissions Office, 1800 Cannon Drive
Columbus, OH 43210
614-422-3980

**DEPARTMENT OR PROGRAM**: Zoology Department (39 faculty)
Contact: Dr. John Crites
Telephone: 614-422-8088
Other Programs Offering Graduate Education in Ecology: Environmental Biology Program (20 faculty), contact Dr. Sheldon Lustick, 614-422-5306.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: NO

Other: 15 qtr hrs chemistry (including organic chemistry or biochemistry); 40 qtr hrs biology; 10 qtr hrs each physics and math, including calculus.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | | YES | 0 | 0 |
| Ph.D. | 100 | NO | NO | NO | YES | YES | 0 | 0 |

Other: Formal thesis proposal by end of 5th qtr (MS and PhD); advisory committee can require specific courses or language for a student. Thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 45 | 16 | 4 | 3 | 65 | 20 |
| Ph.D. | 11 | 6 | 6 | 5 | 20 | 8 |

Other: These figures are for Zoology graduate students as a whole. About 80-90% of the students are working in the general area of ecology.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 2 | 38 | 4 | 23 | | 33 |
| Ph.D. | | | 39 | | 50 | 11 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population and community ecology, aquatic ecology, behavior.

Formal Teaching/Research Arrangements With Other Institutions: CIC Traveling Scholar Program with other Big 10 schools.

**OKLAHOMA STATE UNIVERSITY**
Graduate College, Whitehurst Hall
Stillwater, OK 74078
405-624-6368

**DEPARTMENT OR PROGRAM:** Botany & Microbiology Dept./Botany Program (11 faculty)
Contact: Dr. Glenn W. Todd
Telephone: 405-624-5559
Other Programs Offering Graduate Education in Ecology: Botany & Microbiology Dept./Microbiology Program (9 faculty), contact Dr. Glenn W. Todd, 405-624-5559.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: verb. 450 (MS), 550 (PhD); quant. 550 (MS), 600 (PhD)

Other: Ecology, physiology, taxonomy, anatomy, genetics, microbiology, (deficiencies may be remedied on a non-credit basis).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 1 | 20 |
| Ph.D. | 90 | NO | YES | NO | YES | YES | 1 | 20 |

Other: Botany seminar. Course requirements are determined on an individual basis by advisory committee.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 0 | 2 | 2 | 6 | 3 |
| Ph.D. | 1 | 1 | 4 | 4 | 2 | 1 |

Other: The figures above apply to ecology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 40 | | 40 | | |
| Ph.D. | 50 | 50 | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological ecology, vegetational ecology, ecological genetics, limnology.

Specialized Facilities: New Life Sciences building, with 150,000-specimen herbarium and reach-in growth chamber facility, walk-in growth chambers elsewhere; numerous microcomputers, IBM 3081D mainframe; 160-acre ecology research reserve and 10,000 acres of additional University land available for research.

**OKLAHOMA STATE UNIVERSITY**
Department of Zoology
Stillwater, OK 74078
405-624-5555

**DEPARTMENT OR PROGRAM**: Zoology Dept./Zoology Program (20 faculty)
Contact: Jerry Wilhm
Telephone: 405-624-5555
Other Programs Offering Graduate Education in Ecology: Zoology Dept./Wildlife & Fisheries Ecology Program, contact Jerry Wilhm, 405-624-5555.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | YES | YES | YES | 0 | 0 |
| Ph.D. | 90 | NO | NO | YES | YES | YES | 0 | 0 |

Other: MS requires one language or skill (math, statistics, computer science); PhD requires two.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 14 | 13 | 2 | 2 | 35 | 8 |
| Ph.D. | 7 | 7 | 4 | 4 | 12 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 60 | | 10 | | 20 |
| Ph.D. | 40 | 30 | 10 | | 5 | 15 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, wildlife ecology, fisheries biology, aquatic toxicology.

Formal Teaching/Research Arrangements With Other Institutions: Oklahoma City Zoo.

Specialized Facilities: 2500-acre lake; 19,000-acre watershed for research.

**OLD DOMINION UNIVERSITY**
Office of Admissions
Norfolk, VA 23529
804-440-3637

**DEPARTMENT OR PROGRAM**: Ecological Sciences Ph.D. Program (17 faculty)
Contact: Dr. Frank P. Day, Jr.
Telephone: 804-440-3595
Other Programs Offering Graduate Education in Ecology: Biological Sciences M.S. Program (26 faculty), contact Dr. Gerald Levy, 804-440-3595.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1000 verb. & quant. combined
Other: Three letters of recommendation; acceptance by a faculty member.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 31 | YES | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 48 | YES | YES | YES | YES | YES | 0 | 0 |

Other: Management internship or prior experience for the PhD; without an MS, 70 hours of coursework are required for the PhD.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 14 | 2 | 2 | 50 | 20 |
| Ph.D. | 3 | 9 | 4 | 4 | 15 | |

Other: PhD program is too new to have graduates.

**RECENT PROGRAM GRADUATES** - *No information available.*

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecology, ecosystems ecology, small mammal population ecology, pollution ecology, population ecology of parasitic plants, ecology of arthropod disease vectors, cave ecology, swamp ecology, forest ecology.

Specialized Facilities: Herbarium, greenhouse, field stations in Great Dismal Swamp and Virginia Barrier Islands, excellent computer facilities and library, controlled environment rooms, electron microscope facility, Applied Marine Research Laboratory.

**OREGON STATE UNIVERSITY**
Admissions Office
Corvallis, OR 97331
503-754-4411

**DEPARTMENT OR PROGRAM:** Botany and Plant Pathology (27 faculty)
Contact: Norman I. Bishop
Telephone: 503-754-3451

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | NO | YES | NO | YES | YES | 0 | 15 |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 15 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 9 | 3 | 3 | 24 | 8 |
| Ph.D. | 5 | 18 | 5 | 5 | 26 | 6 |

Other: Numbers above include all students in the department, not just ecology students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 15 | 25 | 25 | | 20 |
| Ph.D. | 17 | 11 | 56 | | 8 | 8 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant population ecology, plant-water relations, autecology of conifers, aquatic ecology, soil ecology, community analysis, mathematical modeling.

Formal Teaching/Research Arrangements With Other Institutions: Several senior government scientists have courtesy appointments in the department and supervise students in ecology; close ties with H. J. Andrews Experimental Forest personnel and facilities.

Specialized Facilities: Herbarium of >250,000 specimens; greenhouse with teaching & research collections; electron microscopy lab; 45-acre botany farm; campus mainframe computer, numerous microcomputers; Hatfield Marine Sciences Center, Newport; well equipped teaching labs.

**PAN AMERICAN UNIVERSITY**
Admissions Office
Edinburg, TX 78539
512-381-2206

**DEPARTMENT OR PROGRAM:** Biology (9 faculty)
Contact: Dr. S. L. Sidas
Telephone: 512-381-3537

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Other: Genetics, cell biology or bacteriology, ecology, plant or mammalian physiology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | YES | NO | | YES | 0 | 0 |

Other: One three-hour problems course; three one-hour seminars. MS thesis and non-thesis options available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 8 | 4 | 2 | 2 | 10 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 10 | 20 | 20 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Barrier island ecology, vertebrate population and physiological ecology, behavioral ecology of lower vertebrates, invertebrate community ecology, wetlands ecology, plant community ecology.

Specialized Facilities: Coastal Studies Laboratory on South Padre Island provides 7,700 sq. ft of space for teaching and research. Research focuses on the Laguna Madre, Padre Island, and the coastal zone of Southern Texas and northern Mexico.

**PENNSYLVANIA STATE UNIVERSITY**
Kern Graduate Building
University Park, PA 16802
814-865-1795

**DEPARTMENT OR PROGRAM**: Graduate Program in Ecology (50 faculty)
Contact: Dr. Edward D. Bellis
Telephone: 814-865-3942

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO
Other: One year each of physics, calculus, and organic chemistry.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | YES | YES | YES | YES | YES | 0 | 0 |

Other: Seminars, formal and informal.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 8 | 3 | 3 | 16 | 4 |
| Ph.D. | 2 | 12 | 5 | 5 | 16 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 40 | 10 | | 30 | | 20 |
| Ph.D. | 40 | 20 | 30 | | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Quantitative ecology, wildlife management, aquatic biology, microbial ecology.

Formal Teaching/Research Arrangements With Other Institutions: Much cooperation with other institutions and with federal and state agencies.

Specialized Facilities: Good biological library, extensive animal and plant collections; greenhouses, growth chambers, experimental gardens, and animal care facilities; image analysis and remote sensing laboratories; Stone Valley Experimental Forest, Spruce Creek Experimental Area.

**PITTSBURG STATE UNIVERSITY**
Admissions Office
Pittsburg, KS 66762
316-231-7000

**DEPARTMENT OR PROGRAM:** Biology (11 faculty)
Contact: Dr. James Triplett
Telephone: 316-231-7000

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Other: General botany, genetics, general zoology, upper division physiology, microbiology, basic ecology. All courses with lab, except ecology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | | YES | 0 | 0 |

Other: Thesis and non-thesis options available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 2 | 2 | 2 | 4 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 40 | 15 | | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, with emphasis on fish.

Formal Teaching/Research Arrangements With Other Institutions: Kansas Game and Fish Commission.

Specialized Facilities: New biology building, well-equipped laboratories especially in aquatic ecology; greenhouses; herbarium (30,000 specimens); field laboratory with 79 acres.

**PRINCETON UNIVERSITY**
307 Nassau Hall
Princeton, NJ 08544
609-452-3034

**DEPARTMENT OR PROGRAM**: Biology/Population Biology (24 faculty)
Contact: Henry S. Horn
Telephone: 609-452-3835
Other Programs Offering Graduate Education in Ecology: Center for Energy and Environmental Studies (12 faculty), contact Robert H. Socolow, 609-452-5445.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Entrance requirements are competitive. Strong background in biology with support in mathematics is helpful.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | 0 | NO | YES | NO | YES | YES | 2 | 6 |

Other: Coursework is tailored to individual student's needs and aspirations.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 9 | 3 | 5 | 5 | 15 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 8 | 10 | 41 | 23 | 18 |

Other: There has been a total of 12-15 students in Population Biology.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Conceptual issues in population, community & behavioral ecology, and evolutionary mechanisms. Unusual emphasis on the relation between field work and theory.

Formal Teaching/Research Arrangements With Other Institutions: Cordial informal arrangements with: American Museum of Natural History, Philadelphia Academy of Sciences, Rutgers Univ., Univ. of Pennsylvania, New York Zoological Society, Brooklyn Botanic Garden, and Smithsonian Institution.

Specialized Facilities: Access to scattered field stations in rural New Jersey totaling about 1,000 acres; field sites in Amazonian Peru, the Galapagos, Kenya & Tanzania, and bits & pieces of Australia; microcomputers.

**PURDUE UNIVERSITY**
Committee on Graduate and Advanced Studies, E4
W. Lafayette, IN 47907
317-494-8144

**DEPARTMENT OR PROGRAM:** Biological Sciences/Ecology Program (6 faculty)
Contact: L. D. Smith/R. D. Howard (Ecology area)
Telephone: 317-494-4407/317-494-8136

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | NO | NO | 0 | 0 |
| Ph.D. | | | YES | YES | YES | NO | 1 | 1 |

Other: Preliminary exam for the PhD.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 0 | 2 | 2 | 2 | 2 |
| Ph.D. | 12 | 0 | 5 | 5 | 12 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | | | 50 | | |
| Ph.D. | | | 20 | | 50 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioral ecology, plant-animal and plant-parasite co-evolution.

Specialized Facilities: Field stations 10 mi and 125 mi from campus; large greenhouses and animal facilities; micro-computers, access to mainframes including Cyber 205; considerable sound and video equipment; electrophoresis lab with HPLC.

**PURDUE UNIVERSITY**
Department of Forestry and Natural Resources
West Lafayette, IN 47901
317-494-3566

**DEPARTMENT OR PROGRAM:** Wildlife Science Program (5 faculty)
Contact: H. P. Weeks
Telephone: 317-494-3567
Other Programs Offering Graduate Education in Ecology: Fisheries Science Program, (2 faculty), contact G. S. Libey, 317-494-3626; Forest Science Program (8 faculty), contact W. R. Byrnes, 317-494-3503 .

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.20
GRE Required: YES
Minimum GRE Scores Required: verb. 500, quant. 500

Other: Chemistry, calculus, physiology, computer programming, statistics, ecology, 2 semesters biology, vertebrate zoology, plant taxonomy, wildlife management.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | | YES | 0 | 0 |
| Ph.D. | 24 | NO | YES | NO | YES | YES | 0 | 0 |

Other: Thesis and non-thesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 5 | 2 | 3 | 5 | 2 |
| Ph.D. | | 13 | 3 | 4 | 13 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 40 | | 30 | | 5 |
| Ph.D. | 20 | 50 | 25 | | | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Integrated resource management (applied terrestrial/aquatic ecology); quantitative methods; georeference data systems.

Formal Teaching/Research Arrangements With Other Institutions: Research programs with Indiana Department of Natural Resources; Dominican Republic; U.S. Forest Service, and others.

Specialized Facilities: Departmental computer center including Intergraph graphics workstation; numerous properties in Indiana with a variety of facilities to support field studies; greenhouses; large enclosures suitable for mesocosm studies of terrestrial systems.

**QUEEN'S UNIVERSITY**
School of Graduate Studies
Kingston, Ontario K7L 3N6 Canada
613-545-6140

**DEPARTMENT OR PROGRAM:** Biology (27 faculty)
Contact: D. T. Dennis
Telephone: 613-545-6160

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 16 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 0 | NO | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 20 | 0 | 2 | 2 | 20 | 10 |
| Ph.D. | 10 | 0 | 3 | 3 | 10 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 20 | | 50 | | 20 |
| Ph.D. | 5 | 20 | 50 | | 20 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioural ecology and evolutionary biology, population genetics, avian behaviour, arctic ecology, freshwater biology, theoretical population biology.

Specialized Facilities: Field stations - Queen's University Biological Station at Lake Opinicon (temperate) and Queen's University Tundra Biological Station (subarctic) at Churchill, Manitoba.

**RICE UNIVERSITY**
Post Office Box 1892
Houston, TX 77251
713-527-8101

**DEPARTMENT OR PROGRAM:** Biology Department/Ecology (3 faculty)
Contact: Paul A. Harcombe
Telephone: 713-527-4924
Other Programs Offering Graduate Education in Ecology: Environmental Science & Engineering (4 faculty), contact C.H. Ward, 713-527-4086.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: 70th percentile on verb. & quant.

Other: One year each of calculus, physics, and chemistry.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | NO | NO | 4 | 5 |
| Ph.D. | | NO | YES | NO | YES | YES | 4 | |

Other: The teaching requirement need only be met once; if teaching is not done during M.S. program, only then must it be completed during for the Ph.D. program.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | | 2 | 3 | 2 | 1 |
| Ph.D. | 1 | 3 | 5 | 6 | 4 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | | | | | 50 |
| Ph.D. | 10 | | 10 | | 30 | 50 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant community ecology, insect population biology, marshland and estuarine biology.

Formal Teaching/Research Arrangements With Other Institutions: University of Houston, University of Texas School of Public Health, University of Texas School of Biomedical Science.

**RUTGERS UNIVERSITY, CAMDEN**
329 Cooper Street
Camden, NJ 08102
609-757-6102

**DEPARTMENT OR PROGRAM:** Biology Graduate Program (10 faculty)
Contact: Dr. Ralph E. Good
Telephone: 609-757-6146

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.10
Other: Ecology, genetics, physics, calculus, developmental biology, chemistry.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | | YES | 0 | 0 |

Other: Thesis and non-thesis options available. Non-thesis options requires demonstration of writing ability.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 3 | 2 | 3 | 30 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 20 | 5 | 50 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Estuarine ecology, wetland ecology, vertebrate ecology, and aquatic ecology.

Formal Teaching/Research Arrangements With Other Institutions: Close interaction with Ph.D. programs on New Brunswick (Rutgers) campus; all faculty are a part of the those programs. Also interact with the Academy of Natural Sciences.

Specialized Facilities: Terrestrial and marine field stations in Pinelands National and Biosphere Reserve, herbarium, fish collection, greenhouses, AS-9000 and HP mainframes, radiation lab, many micro computers.

**RUTGERS UNIVERSITY, NEW BRUNSWICK**
Graduate Admissions Office, CN 5053 (Van Nest Hall)
New Brunswick, NJ 08903
201-932-7711

**DEPARTMENT OR PROGRAM:** Botany and Plant Physiology Graduate Program (32 faculty)
Contact: Steven N. Handel
Telephone: 201-932-2077

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: Verb. 500, Quant. 500

Other: General chemistry w/lab, general biology w/lab, organic chemistry, genetics, calculus, physics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 26 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 40 | NO | YES | NO | YES | YES | 0 | 0 |

Other: Thesis and non-thesis options are available for the MS. At least one undergraduate or graduate level course in each of 3 areas (plant ecology, plant physiology, and structure of plant groups) is required for the MS; for the PhD, at least two courses in each of two areas and one in a third are needed.

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 12 | 4 | 3 | 3 | 20 | 5 |
| Ph.D. | 11 | 9 | 6 | 5 | 30 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 12 | 18 | 18 | 46 | | 6 |
| Ph.D. | 20 | 15 | 35 | | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: From a recent external review: "the plant ecology program...is quite strong, perhaps ranking among the top ten"; plant physiology would also be highly ranked, and there are acknowledged national and international leaders in the Rutgers Ecology Program.

Formal Teaching/Research Arrangements With Other Institutions: New York Botanical Garden and its Institute of Ecosystem Studies; individual scientists also maintain cooperative arrangements with several other universities and scientific institutions in the region.

Specialized Facilities: Germinators, algal growth chambers, greenhouses, and the Chrysler Herbarium; excellent computer facilities; 3,000,000 volume library among the top 25 in U.S.; Pinelands National Reserve, Hutcheson primeval experimental forest, coastal field stations.

**RUTGERS UNIVERSITY, NEW BRUNSWICK**
Van Nest Hall, 2nd Floor, College Avenue Campus
New Brunswick, NJ 08903
201-932-7711

**DEPARTMENT OR PROGRAM:** Ecology Graduate Program (55 faculty)
Contact: Dr. Joanna Burger
Telephone: 201-932-4318

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: verb. 600, quant. 600

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | NO | YES | 0 | 15 |
| Ph.D. | 72 | YES | NO | YES | YES | YES | 0 | 15 |

Other: PhD requires one year of residency.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | | 2 | | 31 | 3 |
| Ph.D. | 15 | 5 | 4 | | 27 | 9 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 20 | | 40 | | 20 |
| Ph.D. | 30 | 30 | 15 | | 25 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Conservation, estuarine, marine, and freshwater ecology; ecology of humans, birds, fishes, reptiles, invertebrates; microbial, physiological, and population ecology; plant-animal interactions; plant ecology; sociobiology; toxicology; wildlife ecology.

Specialized Facilities: Greenhouse; herbarium; oyster research laboratories on coast; Marine Field Stations at Barnegat and Tuckerton; lab facilities at 3 campuses include research equipment, vehicles, and small boats; computers include IBM 370/158, VAX 11/780, DEC SYS-20.

**SAINT LOUIS UNIVERSITY**
Graduate Admissions, 221 N. Grand
St. Louis, MO 63103
314-658-2240

**DEPARTMENT OR PROGRAM**: Biology (11 faculty)
Contact: R. A. Aldridge
Telephone: 314-658-3900

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO
Other: Calculus, chemistry (7 hrs upper division), physics (8 hrs).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | | YES | 0 | 0 |
| Ph.D. | 60 | NO | YES | YES | YES | NO | 0 | 0 |

Other: Thesis and non-thesis options available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 0 | 2 | 2 | 20 | 4 |
| Ph.D. | 6 | 0 | 4 | 4 | 8 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 20 | | 20 | | 40 |
| Ph.D. | 10 | | 80 | | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological ecology, population ecology, reproductive ecology.

Formal Teaching/Research Arrangements With Other Institutions: Missouri Botanical Garden, Washington University, St. Louis Zoo.

Specialized Facilities: Herbarium and library, Missouri Botanical Garden, Reis Biological Field Station in Ozark Mts., Tyson Research Center (Wash. U.), spring-fed indoor aquatic laboratory, greenhouse, field vehicles, canoes, power boats.

**SAN DIEGO STATE UNIVERSITY**
San Diego, CA 92182
619-265-5384

**DEPARTMENT OR PROGRAM**: Biology (75 faculty)
Contact: Dr. P. Paolini
Telephone: 619-265-6767

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 2.75 Minimum GRE Scores Required: verb. 550, quant. 550
Other: 60% on Advanced Biology GRE test.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 20 | 0 | 2 | 3 | 140 | 30 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecosystems, physiological ecology, population biology, marine ecology.

Specialized Facilities: Libraries; greenhouses; two field stations in chaparral, 2500 & 4000 acres; ecology computers [VAX, HP 9920, HP 9816(5), HP 9817(2), and PCs] in addition to campus computing center (Cyber, VAX); field vehicles; eucalyptus plantation.

**SAN DIEGO STATE UNIVERSITY**
San Diego, CA 92182
619-265-5384

**DEPARTMENT OR PROGRAM:** Ecology with U. Cal., Davis (15 faculty)
Contact: W. E. Hazen
Telephone: 619-265-6701

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.2 Minimum GRE Scores Required: NO

Other: Concurrent acceptance at Univ. Cal., Davis; advanced biology GRE; 3 letters of recommendation; at least one advanced course in 3 of 5 areas: genetics, advanced basic biology, biology of special groups, ecology, numerical techniques.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | | | YES | | YES | YES | 2 | 0 |

Other: At least one year in residence at each institution; ask for detailed program description.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 8 | 4 | 5 | 5 | 12 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 50 | | 40 | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Analysis and modeling of ecosystems, population and community ecology, marine ecology, evolutionary ecology.

Formal Teaching/Research Arrangements With Other Institutions: Degree awarded jointly by SDSU and UCD.

Specialized Facilities: Over 150 faculty members at both institutions participate in the program; easy access to wide range of field areas.

**SAN FRANCISCO STATE UNIVERSITY**
1600 Holloway Avenue
San Francisco, CA 94132
415-469-2411

**DEPARTMENT OR PROGRAM:** Biological Sciences Dept. (40 faculty)
Contact: Dr. Crellin Pauling
Telephone: 415-469-1548

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 2.75
GRE Required: YES — Minimum GRE Scores Required: 65th percentile on verb. & quant.
Other: Equivalent of BS in biology with ecology emphasis.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

Other: Two graduate seminars; 4-6 units of graduate research; 4 units of thesis registration; English proficiency exam.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 15 | 10 | 2 | 3 | 13 | 4 |

Other: These figures reflect the entire Biology Dept.; about 1/6 of these are in the Ecology and Systematic Biology Program.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 30 | 10 | 20 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Terrestrial field ecology (plant ecology, entomology, herpetology, ornithology, mammology); marine ecology (invertebrate ecology, ecology of fishes, ecology & behavior of mammals, microbiology); plant & vertebrate ecological physiology.

Formal Teaching/Research Arrangements With Other Institutions: Research arrangments with California Academy of Sciences; San Francisco Zoo; Moss Landing Marine Laboratories (member of consortium); NASA - Ames; National Marine Fisheries Service.

Specialized Facilities: Sierra Nevada Field Campus; environmental center on San Francisco Bay; marine lab on Monterey Bay; extensive herbaria (emphasis mycology, phycology, chaparral); sea water, growth chamber, and greenhouse systems; insect and small mammal vivaria; SEM and TEM lab, microcomputers.

**SIMON FRASER UNIVERSITY**
Office of the Registrar
Burnaby, B.C. V5A 1S6 Canada
604-291-3224

**DEPARTMENT OR PROGRAM:** Biological Sciences (36 faculty)
Contact: Dr. L. Srivastava
Telephone: 604-291-4475

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 12 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 8 | NO | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 3 | 35 | 4 |
| Ph.D. | | | | 4 | 40 | 8 |

Other: About 60% of the graduate students in Biological Sciences are in ecological areas.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 30 | | 50 | | 10 |
| Ph.D. | 15 | 50 | 10 | | 20 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Although most areas of ecology are represented in the Department, the major strengths are in evolutionary and behavioural ecology and marine ecology.

Formal Teaching/Research Arrangements With Other Institutions: Students can do their research in several federal government laboratories in the local area (e.g. Fisheries, Forestry, Agriculture).

Specialized Facilities: The West Coast Universities Marine Biological Station, Bamfield, B.C.; departmental research vessel; UBC Research Forest; modern greenhouses and animal care facility; insectary; departmental computer terminals; scanning electron microscopes.

**SIMON FRASER UNIVERSITY**
Centre for Pest Management
Burnaby, B.C. Canada, V5A 1S6
604-291-3705

**DEPARTMENT OR PROGRAM:** Master of Pest Management Program (11 faculty)
Contact: Dr. M. Mackauer
Telephone: 604-291-4808

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO
Other: 18 credit hours in entomology, plant pathology, parasitology, ecology, and chemical pesticides.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 44 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 11 | | | 3 | 42 | 12 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 40 | | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Program provides comprehensive training in pest management and pest control (insect pests, weeds, and animal disease vectors). Program stresses hands-on training in actual control operations, including mandatory "professional semester" in the field.

Formal Teaching/Research Arrangements With Other Institutions: Over 100 professionals from industry, government, and private business participate as guest instructors in professional course program.

Specialized Facilities: Extensive library holdings in pest management and control; computer facilities, insectary, greenhouses, facilities (by arrangement) for agriculture and forestry field research.

**SIMON FRASER UNIVERSITY**
Burnaby, B.C. Canada V5A 1S6
604-291-3224

**DEPARTMENT OR PROGRAM:** Natural Resources Management (6 faculty)
Contact: Dr. J. C. Day
Telephone: 604-291-4659

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00
Other: Parametric and nonparametric statistics, geomorphology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 65 | YES | NO | NO | YES | | 0 | 0 |

Other: Introductory field camp (one week).

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 10 | 2 | 2 | 15 | 10 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 14 | 72 | | 14 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Fisheries management; tourism; regional resource management (students gain broad view of management problems through courses in resource economics, cost/benefit analysis, planning, and law).

Formal Teaching/Research Arrangements With Other Institutions: Students can take up to two approved courses at another university.

Specialized Facilities: Numerous computer facilities. Special feature: some students enroll part-time while working at full-time jobs in government or private resource management agencies. Courses are frequently given in evenings to permit attendence by part-time students.

**SONOMA STATE UNIVERSITY**
Office of Admissions & Records
Rohnert Park, CA 94928
707-664-2745

**DEPARTMENT OR PROGRAM:** Biology (13 faculty)
Contact: Robert J. Sherman
Telephone: 707-664-2189

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.50
GRE Required: YES
Minimum GRE Scores Required: verb. 500, quant. 500

Other: Ecology, genetics, physiology, morphology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | NO | | | 0 | 0 |

Other: Three options are available for the MA: thesis, exam, and coop project.

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 0 | 0 | 2 | 4 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 25 | 42 | | 17 | 17 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Fire ecology, behavioral ecology, ecological management, marine ecology, aquatic ecology.

Specialized Facilities: Marine environments, public lands,and diverse habitats all within an hour's drive; research greenhouse; unlimited access to mainframe computer and departmental personal computers.

**SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE**
Admissions Office
Carbondale, IL 62901
618-453-4381

**DEPARTMENT OR PROGRAM:** Botany (17 faculty)
Contact: Dr. Don Tindal
Telephone: 618-536-3341

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO
Other: Basic botany, general ecology, plant anatomy, genetics, plant physiology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 2 | 10 |
| Ph.D. | 20 | YES | YES | YES | YES | YES | 3 | 10 |

Other: A research tool (e.g., statistics, computer science) may substitute for the PhD language requirement.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 3 | 2 | 2 | | 7 |
| Ph.D. | 4 | 4 | 3 | 4 | | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | 20 | 10 | 5 | | 15 |
| Ph.D. | 25 | 10 | 50 | | | 15 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Terrestrial plant ecology, statistics, quantitative ecology, field ecology.

Specialized Facilities: Morris Research Library, excellent herbarium, greenhouses, field station in south central Montana where we teach a field course in the summer.

**SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE**
Graduate School, Woody Hall
Carbondale, IL 62901
618-453-3341

**DEPARTMENT OR PROGRAM:** Forestry (13 faculty)
Contact: Dr. George T. Weaver
Telephone: 618-453-3341
Other Programs Offering Graduate Education in Ecology: Geography (11 faculty), contact Dr. David Arey, 618-536-3375.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO GRE Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 3 | 20 |
| Ph.D. | 20 | YES | YES | YES | YES | YES | 3 | 20 |

Other: Language or a research tool (e.g., statistics, computer science) for PhD. The PhD is an interdepartmental program with either the Botany Dept. or the Geography Dept.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 25 | 10 |
| Ph.D. | | | 3 | 3 | 2 | 1 |

Other: There are 10 teaching and 15 research assistantships available for both the MS and PhD programs combined.

**RECENT PROGRAM GRADUATES** - Insufficient information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Forest community dynamics, community-envirorment relationships, fire ecology, biomass and nutrient cycling, acid rain, genetics of forest trees.

Specialized Facilities: Morris Research Library, greenhouses, access to 240,000 acres of Shawnee National Forest (30 min), Crab Orchard National Wildlife Refuge, mainframe & microcomputers, laboratories, state parks and nature preserves.

**SOUTHERN ILLINOIS UNIVERSITY, EDWARDSVILLE**
Graduate Studies & Research, Admissions, Box 46
Edwardsville, IL 62026
618-692-3160

**DEPARTMENT OR PROGRAM**: Biological Sciences/Ecology (15 faculty)
Contact: Richard B. Brugam
Telephone: 618-692-3927
Other Programs Offering Graduate Education in Ecology: Environmental Studies Program (1 faculty), contact Frank Kulfinski, 618-692-3311.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES Score: 2.30
GRE Required: YES
Minimum GRE Scores Required: YES; verb. 525, quant. 525

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 48 | NO | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 2 | 2 | 2 | 15 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 100 | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Freshwater ecology, ichthyology and fish ecology, vascular plant anatomy, reptile taxonomy and ecology.

Formal Teaching/Research Arrangements With Other Institutions: Missouri Botanical Garden, St. Louis, MO; Union Electric Co., Environmental Division.

Specialized Facilities: Greenhouse; 2600-acre campus with old field and forest sites; 1100-acre tract near Alton, IL for research and environmental education (Olin Tract); herbarium on local flora; IBM PCs, Apple IIes, access to IBM 370 and Cyber 76 computers.

**SOUTHWEST MISSOURI STATE UNIVERSITY**
901 South National
Springfield, MO 65804
417-836-5517

**DEPARTMENT OR PROGRAM:** Biology (16 faculty)
Contact: Dr. Russell Rhodes
Telephone: 417-836-5126

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 2.50
GRE Required: YES — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | YES | YES | NO | | YES | 0 | 0 |

Other: Thesis and nonthesis options available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 8 | 2 | 2 | 2 | 15 | 10 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 50 | 25 | 10 | 15 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant systematics, ecology, aquatic biology.

Specialized Facilities: Herbarium of 80,000 plants, greenhouse, computer facilities.

**STANFORD UNIVERSITY**
Building 590, Room 208
Stanford, CA 94305
415-723-4291

**DEPARTMENT OR PROGRAM:** Dept. of Biological Sciences (34 faculty)
Contact: Philip C. Hanawalt
Telephone: 415-723-2424

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: NO

Other: Equivalent of undergraduate degree in science including basic background in biology, physics, chemistry, mathematics, and statistics; advanced biology GRE test.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | NO | NO | 0 | 0 |
| Ph.D. | 96 | YES | NO | NO | YES | YES | 2 | 20 |

Other: PhD students give a seminar during the first year; thesis and nonthesis options available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 1 | 1 | 1 | 55 | 50 |
| Ph.D. | 8 | 11 | 5 | 5 | 15 | 10 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: World-renowned faculty, flexibility in coursework selection, ambient weather allows virtually year-round research opportunities.

Formal Teaching/Research Arrangements With Other Institutions: Carnegie Institution of Washington is located on campus and affiliated with Dept. of Biological Sciences; exchange programs with UC-San Francisco and UC-Berkeley.

Specialized Facilities: Jasper Ridge Biological Preserve; Hopkins Marine Station-Pacific Grove; greenhouses; mobile computerized field studies lab; 77,000-volume Falconer Biology library; EMR facilities; extensive herbarium and systematics collections.

**STATE UNIVERSITY OF NEW YORK, ALBANY**
1400 Washington Avenue
Albany, NY 12222
518-442-3981

**DEPARTMENT OR PROGRAM:** Biological Sciences/Ecology and Behavior Program (32 faculty)
Contact: Jerram Brown
Telephone: 518-442-4352

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Basic background in biology including chemistry, physics, mathematics (especially calculus and statistics).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | YES | YES | NO | YES | YES | 2 | 6 |

Other: MS students perform some teaching, research or other profes-sional duties contributing to academic development; PhD must meet a breadth of knowledge requirement and a research tool or language requirement.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 7 | 2 | 2 | 28 | 8 |
| Ph.D. | 26 | 12 | 4 | 5 | 45 | 8 |

Other: Figures are for the entire Biological Science Dept.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | No information available. | | | | | |
| Ph.D. | 7 | | 13 | | 66 | 14 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Animal social systems including reproductive ecology and behavior; migratory behavior; foraging strategy; population ecology.

Specialized Facilities: Computer room, cold rooms, a stockroom, aquarium, animal room, environmental chambers, greenhouse, aviaries; easy access to mountains, pine barrens, and a great variety of habitats in which field studies may be conducted.

**STATE UNIVERSITY OF NEW YORK, BUFFALO**
Director of Graduate Affairs
Buffalo, NY 14260
716-636-2898

**DEPARTMENT OR PROGRAM:** Biological Science (26 faculty)
Contact: Dr. Kenton M. Stewart
Telephone: 716-636-2898

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: verb. 600, quant. 600
Other: If student has no grant support, 6 hours of teaching per semester are required.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | NO | YES | NO | NO | NO | | |
| Ph.D. | | NO | YES | NO | YES | YES | | |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | | 2 | 2 | 4 | 2 |
| Ph.D. | 2 | 1 | 3 | 5 | 3 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | | | 20 | | 30 |
| Ph.D. | 25 | 25 | 25 | | 25 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Limnology (especially of Finger Lakes, New York), coral ecology, physiological ecology.

Specialized Facilities: Greenhouses, science and engineering library, desk and mainframe computers, considerable lab and field equipment.

**STATE UNIVERSITY OF NEW YORK, GENESEO**
Office of Graduate Studies
Geneseo, NY 14454
716-245-5546

**DEPARTMENT OR PROGRAM:** Biology (15 faculty)
Contact: Robert D. Simon
Telephone: 716-245-5301

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1000 on verb. & quant. combined

Other: Organic chemistry; ecology; physiology; genetics; statistics or calculus.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | NO | NO | | | YES | | |

Other: Thesis and nonthesis options available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | | 2 | 2 | 15 | 10 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 10 | 5 | 5 | 10 | 70 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Broad training; old field succession, behavioral ecology, physiological plant ecology.

Formal Teaching/Research Arrangements With Other Institutions: Letchworth State Park.

Specialized Facilities: Herbarium, vivarium, greenhouse, growth/germination chambers, weather recording instruments.

**STATE UNIVERSITY OF NEW YORK, SYRACUSE**
Admissions Office, 109 Bray Hall
Syracuse, NY 13210
315-470-6600

**DEPARTMENT OR PROGRAM**: Environmental and Forest Biology Dept. (37 faculty)
Contact: Robert L. Burgess
Telephone: 315-470-6741

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO
Other: Advanced biology GRE required.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | NO | | YES | 0 | 15 |
| Ph.D. | | YES | YES | NO | YES | YES | 0 | 15 |

Other: There are three options available for the MS: thesis, internship, additional coursework. The PhD requires a minimum of 3 years of full-time study beyond the baccalaureate.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 80 | 27 |
| Ph.D. | | | 4 | 4 | 40 | 6 |

Other: There are 22 teaching and 56 research assistantships available for either MS or PhD students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 40 | 10 | 35 | | 5 |
| Ph.D. | 20 | 20 | 40 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology, forest ecology, fish and wildlife ecology, aquatic ecology and limnology, soil ecology, entomology, physiological ecology.

Formal Teaching/Research Arrangements With Other Institutions: Formal programs with SUNY University Centers at Albany, Binghamton, Buffalo, Stony Brook; Syracuse University; Cornell University; SUNY College at Oswego.

Specialized Facilities: Excellent library, herbaria, vertebrate and invertebrate collections, greenhouses, laboratories, computers, and special equipment; college owns nine major field stations in New York all available for field research.

**STATE UNIVERSITY OF NEW YORK, SYRACUSE**
109 Bray Hall
Syracuse, NY 13210
315-470-6600

**DEPARTMENT OR PROGRAM:** Faculty of Forestry (20 faculty)
Contact: Prof. James E. Coutal
Telephone: 315-470-6536
Other Programs Offering Graduate Education in Ecology: Faculty of Environmental Studies, contact Dr. Robert D. Hennigan, 315-470-6636.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 3 | 44 | 11 |
| Ph.D. | | | | 5 | 19 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 22 | 33 | 19 | 15 | | 11 |
| Ph.D. | 10 | 10 | 60 | | | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Applied forest ecology, silviculture, water resources (hydrology, watershed management), autecology, soils.

Formal Teaching/Research Arrangements With Other Institutions: Share classes and facilities with Syracuse University which adjoins the E.S.F. campus.

Specialized Facilities: Forest ecosystem outdoor teaching/research lab at Heiberg Forest, NY; demonstration forest, Warrensburg, NY; access to mainframe computer at Syracuse University, S.U. Bird Library, E.S.F. Moon Library, E.S.F. greenhouse/growth rooms.

**SYRACUSE UNIVERSITY**
Graduate Office, Steele Hall
Syracuse, NY 13224
315-423-3322

**DEPARTMENT OR PROGRAM**: Biology (28 faculty)
Contact: Dr. Judith Foster
Telephone: 315-423-2930

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 48 | YES | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 3 | 3 | 2 | 1 |
| Ph.D. | | | 5 | 5 | 10 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | | | 50 | | 50 |
| Ph.D. | 20 | | 50 | | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Experimental analysis of hypotheses in population genetics, physiological ecology (plant and animal), behavioral ecology, and evolutionary biology.

Specialized Facilities: Greenhouse, plant growth facilities, micro and main-frame computer terminals, controlled environment facilities, newly renovated laboratory and office facilities.

**TEXAS A & I UNIVERSITY**
Admissions Office, Box 116, Station 1
Kingsville, TX 78363
512-595-2315

**DEPARTMENT OR PROGRAM:** Biology (7 faculty)
Contact: Dr. Carl Wood
Telephone: 512-595-3803
Other Programs Offering Graduate Education in Ecology: Range and Wildlife (4 faculty), contact Dr. Charles DeYoung, 512-595-3711.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 900 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 2 | 2 | 2 | 10 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 50 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Coastal ecosystems and large game animal ecology.

Specialized Facilities: Texas A&I Biological Station (140-acre site with lab on hypersaline bay); Caesar Kleberg Wildlife Institute, a research institute with a generous budget, 8 researchers and 15 staff members.

**TEXAS A & M UNIVERSITY**
Office of Admission and Records
College Station, TX 77843
409-845-3633

**DEPARTMENT OR PROGRAM**: Biology
Contact: Tim Hall

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.25

GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | | | NO | YES | YES | 2 | 8 |
| Ph.D. | 64 | | | NO | YES | YES | 2 | 8 |

Other: The Department of Biology may soon develop a core curriculum which will undoubtedly include a molecular biology course.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 80 | 10 |
| Ph.D. | | | 4 | 4 | 55 | 5 |

Other: These estimates include all biology degrees, not only ecology.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 10 | | 50 | | 20 |
| Ph.D. | 5 | 20 | 25 | | 30 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: There is a wide range of opportunities on campus to join ecologically oriented research programs. Biology Department is reasonably strong in invertebrate ecology (marine and fresh water) and parasite ecology.

Formal Teaching/Research Arrangements With Other Institutions: TAMU is a land grant and a sea grant university. Also the Department of Biology has strong ties to the Moody Campus at Galveston, Texas.

Specialized Facilities: Very good library, computer center and research facilities. The Department of Biology is well equipped and has more than adequate research space for students.

**TOWSON STATE UNIVERSITY**
Graduate Office
Towson, MD 21204

**DEPARTMENT OR PROGRAM**: Biological Sciences (25 faculty)
Contact: Donald C. Forester
Telephone: 301-321-3042

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO
Other: Advanced biology GRE; 24 credits in biology; general & organic chemistry, physics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 36 | YES | YES | NO | NO | NO | 0 | 0 |

Other: Thesis and nonthesis options are available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 0 | 1 | 4 | 30 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 70 | 20 | | 5 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioral ecology, with active researchers whose specialties are birds, amphibians, insects, and marine invertebrates; opportunities are also available in plant ecology and freshwater biology.

Specialized Facilities: VAX 785 computer system; new greenhouse complex; active herbarium; large collection of native insects and non-mammalian vertebrates; library receives over 200 periodicals in Biology.

**TUFTS UNIVERSITY**
Graduate School of Arts & Sciences
Medford, MA 02155
617-628-5000

**DEPARTMENT OR PROGRAM**: Biology (16 faculty)
Contact: Dr. E. C. Siegel
Telephone: 617-381-3195

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: NO

Other: Genetics, organic chemistry, physics, calculus, plus biological training or experience equivalent to an undergraduate major.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | NO | NO | NO | YES | YES | 1 | 6 |
| Ph.D. | | NO | YES | YES | YES | YES | 2 | 6 |

Other: Computer programming can be substituted for language requirement.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 0 | 2 | 2 | 12 | 6 |
| Ph.D. | 9 | 5 | 5 | 4 | 12 | 3 |

Other: These data are for the Biology program as a whole; approximately 1/4 of these students are in the ecological areas listed below.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 33 | | | 33 | | 33 |
| Ph.D. | | 20 | 30 | | 20 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine invertebrate zoology, particularly planktonic life histories; terrestrial plant, animal, and fungal ecology; bird and mammal social behavior; plant-insect/ plant-fungal interactions; plant water relations; plant stress physiology.

Formal Teaching/Research Arrangements With Other Institutions: Cross registration with Boston University, Boston College, Bradeis, Northeastern, University of Massachusetts.

Specialized Facilities: Consortium arrangement for major Boston area libraries, greenhouses; moderate herbarium (but access to major Boston herbaria & museums) mainframe and personal computers.

**TULANE UNIVERSITY**
Graduate School
New Orleans, LA 70118
504-865-5100

**DEPARTMENT OR PROGRAM:** Biology (20 faculty)
Contact: Arthur L. Welden
Telephone: 504-865-5546

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Score Required: 1300 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | NO | NO | 0 | |
| Ph.D. | 48 | NO | YES | YES | YES | | 2 | 8 |

Other: PhD course hours include several research courses; computer or special math courses may substitute for one language; for the MS a student must demonstrate research competence in special project course.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 7 | 4 |
| Ph.D. | | 2 | 3 | 4 | 29 | 4 |

Other: There are 15 teaching assistantships for MS & PhD students together.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 10 | | 60 | | 20 |
| Ph.D. | 30 | 10 | 40 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Half of the biology faculty are ecologists and systematists, with interests ranging from protozoa and fungi to insect-plant relationships in one direction, and ichthyology and mammalogy in another direction.

Formal Teaching/Research Arrangements With Other Institutions: Tulane has arrangements with the Louisiana Consortium for marine research (State Universities program). MesoAmerican Institute takes students to Mexico and Central America for research.

Specialized Facilities: Herbarium emphasizes Louisiana, desert, and Latin American flora; fifth largest fish collection in US; considerable herpetology and crustacean collection; botanical and specialized journal libraries; year-round weather and variety of aquatic & terrestrial habitats.

**UNIVERSITE DE MONTREAL**
Faculte des Etudes Superieures
Montreal, P. Quebec H3C 3J7 Canada
514-343-6426

**DEPARTMENT OR PROGRAM**: MS and PhD
Contact: Peter Harper, Roch Carbonneau
Telephone: 514-343-6790, 514-343-6878

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.80
Other: General ecology, plant ecology, fresh water ecology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 9 | YES | | YES | YES | | | |
| Ph.D. | 1 | NO | YES | YES | YES | | | 3 |

**STUDENT PROFILE** - No information available.

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, plankton ecology, benthos, ichthyology, entomology.

Specialized Facilities: Building, library, greenhouse, field station, computer.

**UNIVERSITE DE SHERBROOKE**
2500 boulevard Universite
Sherbrooke, Quebec, Canada J1K 2RI
819-821-7007

**DEPARTMENT OR PROGRAM**: Biologie
Contact: Dr. Pierre Bechard
Telephone: 819-821-7070
Other Programs Offering Graduate Education in Ecology: Environment (M.Sc.), contact Dr. Denis Gravel, 819-821-7177.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES GRE Required: NO
Score: 2.50

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 135 | YES | NO | NO | YES | NO | 0 | 5 |
| Ph.D. | 90 | YES | NO | NO | YES | YES | 0 | 5 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 5 | 2 | 2 | 8 | 4 |
| Ph.D. | 2 | 6 | 3 | 3 | 4 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 20 | 30 | 20 | | 15 |
| Ph.D. | 5 | 20 | 35 | | 20 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Feeding strategies (ecology of cyclic vole populations; ecology of frugivorous bats and birds); blackbird sterilization (chemical, hormonal); ecoethology of blackbirds (also with teledetection).

Formal Teaching/Research Arrangements With Other Institutions: Experimental farm (Canada Dept. Agriculture, Lennoxville); Bishop University, Lennoxville; Universite du Quebec at Montreal.

Specialized Facilities: Field vehicles and equipment; vertebrate rearing and observation rooms; 178,000-plant collection centered on local area and Quebec; equipment for constraint analysis, energetics and endogenic rhythms; good computer availability, energetics and endogenic rhythms; good computer availability.

**UNIVERSITY OF ALABAMA, BIRMINGHAM**
Graduate School, University Center
Birmingham, AL 35294
205-934-8227

**DEPARTMENT OR PROGRAM:** Biology (16 faculty)
Contact: Dr. Daniel Jones
Telephone: 205-934-4290

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined for MS, 1100 for PhD.

Other: Organic chemistry, calculus, physics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | YES | NO | | YES | 0 | |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | |

Other: Thesis and nonthesis options are available for the MS; research tool required, e.g., electron microscopy, computer science, or statistics.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 2 | 3 | 3 | 18 | 4 |
| Ph.D. | 3 | 4 | 5 | 5 | 10 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 10 | | 20 | | 50 |
| Ph.D. | 30 | 10 | 20 | | | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Vertebrate reproductive ecology, physiological ecology.

Specialized Facilities: Buildings, herbaria, libraries, greenhouses, field stations and sites, computers and other specialized equipment.

**UNIVERSITY OF ALABAMA, TUSCALOOSA**
Drawer W
Tuscaloosa, AL 35487
205-348-5921

**DEPARTMENT OR PROGRAM:** Biology (25 faculty)
Contact: William H. Darden, Jr.
Telephone: 205-348-5960

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: verb. 500, quant. 500

Other: Introductory biology, cell biology, biochemistry, genetics, evolution, ecology; organic chemistry, physics, and calculus are strongly recommended.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | YES | NO | | YES | 1 | 8 |
| Ph.D. | 48 | NO | YES | YES | YES | YES | 1 | 8 |

Other: Thesis and nonthesis options available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 2 | 3 | 3 | 16 | 7 |
| Ph.D. | 15 | 4 | 6 | 6 | 20 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 10 | 5 | 26 | | 59 |
| Ph.D. | 18 | | 46 | | 18 | 18 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Our major strength is in aquatic ecology. There are 13 faculty in our section of ecology & systematics, of which 9 work on some aspect of aquatic ecology.

Specialized Facilities: Over 95,000 square feet of facilities including EM lab with 2 TEMs, 1 SEM, aquatics lab with artificial streams, large collection of fish specimens, 50,000-specimen herbarium, large greenhouse, aquatic insect collection, Dauphin Island Sea Lab with marine invertebrate collection and herbarium.

**UNIVERSITY OF ALASKA**
Office of Admissions and Records
Juneau, AK 99801
907-789-4458

**DEPARTMENT OR PROGRAM**: School of Fisheries & Science (12 faculty)
Contact: Dr. Ole Mathisen
Telephone: 907-789-4441

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1100 verb. & quant. combined

Other: Demonstrated English proficiency; adequate background to complete degree program within 7 years.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 20 | | 3 | 25 | 12 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 25 | 50 | | 5 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Biology of salmonid fishes, halibut and commercially-important crustaceans of the North Pacific.

Formal Teaching/Research Arrangements With Other Institutions: Formal and informal research arrangements with Alaska Dept. of Fish and Game and U.S. National Marine Fisheries Service.

Specialized Facilities: New computer facilities; school is on shore of Auke Bay, adjacent to NMFS lab and salmon hatchery; undisturbed marine, freshwater and terrestrial habitats within a few minutes travel time; glaciers in view from school.

**UNIVERSITY OF ALBERTA**
Faculty of Graduate Studies and Research
Edmonton, Alberta T6G 2E1 Canada
403-434-3499

**DEPARTMENT OR PROGRAM:** Forest Science (14 faculty)
Contact: Dr. James A. Beck
Telephone: 403-432-4413

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.10

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 18 | NO | NO | NO | YES | YES | 1 | 12 |
| Ph.D. | 30 | NO | YES | NO | YES | YES | 1 | 12 |

Other: For the M.Sc. at least one advanced statistics or research methods course plus participation in seminar; same for the Ph.D., plus some course work in ecological and management areas.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 3 | 30 | 2 |
| Ph.D. | | | | 4 | 10 | 0 |

Other: Most students who have required financial assistance have received research assistantships.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 31 | 30 | | 20 | | 19 |
| Ph.D. | 20 | 40 | 20 | | 20 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological ecology, fire ecology, genecology, population biology.

Formal Teaching/Research Arrangements With Other Institutions: Informal research ties with Alberta Forest Service, British Columbia Forest Service, Canadian Forestry Service.

Specialized Facilities: University library is third largest in Canada; extensive greenhouse facilities, access to science faculty phytotron; access to extensive forest land; large Amdahl computer.

**UNIVERSITY OF ARIZONA**
Biological Sciences West, Room 310C
Tucson, AZ 85721
602-621-1165

**DEPARTMENT OR PROGRAM**: Ecology and Evolutionary Biology (22 faculty)
Contact: Dr. Conrad A. Istock
Telephone: 602-621-7509

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | NO | YES | 0 | 0 |
| Ph.D. | 60 | NO | YES | YES | NO | YES | 2 | 20 |

Other: For the Ph.D., a computer language.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 3 | 15 | 6 |
| Ph.D. | | | 5 | 5 | 50 | 8 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 21 | 21 | | 29 | | 29 |
| Ph.D. | 2 | 17 | 45 | | 15 | 21 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population and community ecology, biogeography, population and evolutionary genetics, ecological theory, physiological ecology.

Formal Teaching/Research Arrangements With Other Institutions: Member, organization for Tropical Studies (OTS); working relationship with Southwestern Research Station of the American Museum of Natural History in the Chiricahua Mountains of southeast Arizona.

Specialized Facilities: Drosophila collection; marine research vessel in Sea of Cortez; herbarium; vertebrate and invertebrate collections; Audubon Research Ranch; Puerto Penasco Marine Research Station; Arizona-Sonora Desert Museum; excellent mini and micro computers.

**UNIVERSITY OF ARKANSAS**
Administration 222
Fayetteville, AR 72701
501-575-5346

**DEPARTMENT OR PROGRAM:** Zoology (16 faculty)
Contact: Dr. Charles Amlander
Telephone: 501-575-6360
Other Programs Offering Graduate Education in Ecology: Botany (13 faculty), contact Dr. Dwight E. Talburt, 501-575-4901; Entomology (13 faculty), contact Gerald J. Musick, 501-575-2451.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES — GRE Required: YES
Score: 2.50 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | | YES | 0 | 0 |
| Ph.D. | 48 | YES | YES | YES | YES | YES | 0 | 0 |

Other: Thesis and non-thesis options available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 4 | 2 | 3 | 15 | 5 |
| Ph.D. | 9 | 4 | 4 | 4 | 15 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 15 | | 70 | | 5 |
| Ph.D. | 10 | 3 | 40 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, vertebrate zoology/ecology (herpetology, ornithology).

Specialized Facilities: Standard library, computer, greenhouse, herbarium, museum and other features and collections, typical for a major state University. Easy access to extensive tracts of public land. Recently established Cooperative Fish & Wildlife Unit.

**UNIVERSITY OF BRITISH COLUMBIA**
Registrar's Office
Vancouver, B.C. Canada

**DEPARTMENT OR PROGRAM**: Plant Science/Range Ecology, Crop Ecology (2 faculty)
Contact: Dr. V. C. Runecleles
Telephone: 604-228-3451

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.25

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 15 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 1 | | 4 | 2 | |
| Ph.D. | 1 | 1 | | 5 | 2 | |

Other: Duration of student support varies.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 50 | | 50 | | |
| Ph.D. | 50 | 50 | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Horticulture, pathology, and entomology.

Formal Teaching/Research Arrangements With Other Institutions: Research Stations of Agriculture Canada.

Specialized Facilities: Herbarium, greenhouses, computing facilities (mainframe and micro).

**UNIVERSITY OF BRITISH COLUMBIA**
6270 University Blvd. 2354 Biology Bldg.
Vancouver, BC V6T 2A9 Canada
604-228-5087

**DEPARTMENT OR PROGRAM:** Zoology/Ecology Program (35 faculty)
Contact: G. G. E. Scudder
Telephone: 604-228-3161

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.40

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 15 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 30 | | 2 | 2 | 61 | |
| Ph.D. | 24 | | 3 | 4 | 68 | |

Other: These figures are for all zoology students, not only ecology students. All graduate students receive research assistantships May-August.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 60 | | 20 | | |
| Ph.D. | 20 | 60 | 10 | | 5 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population ecology, quantitative ecology, resource ecology.

Formal Teaching/Research Arrangements With Other Institutions: Connections with Agriculture Canada lab and Dept. Fisheries and Ocean lab.

Specialized Facilities: Bamfield Marine Station, ecology reading room, Vax computer, Amdahl computer.

**UNIVERSITY OF CALIFORNIA, BERKELEY**
Dept. of Forestry & Resource Science, 145 Mulford Hall
Berkeley, CA 94720
415-642-6410

**DEPARTMENT OR PROGRAM**: Forestry & Resource Management/Wildland Resource Science (25 faculty)
Contact: Dennis Teiguarden
Telephone: 415-642-3765

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO

Other: Application must be approved by prospective major professor, who should be contacted prior to making application.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 20 | NO | YES | NO | NO | NO | 0 | |
| Ph.D. | | NO | YES | YES | YES | YES | 0 | |

Other: Breadth requirements for both MS and PhD in four fields: (1) resource measurement and analysis, (2) resource ecology, (3) resource economics, and (4) resource management.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 2 | 15 | 20 |
| Ph.D. | | | | 4 | 5 | 2 |

Other: The department has 20 teaching and 30 research assistantships available to support either MS or PhD students. About 3/4 of our students are supported throughout their program. The figures above are for ecology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 30 | | 50 | | 20 |
| Ph.D. | 15 | 15 | 50 | | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Forest ecology, grassland ecology, wildlife ecology.

Formal Teaching/Research Arrangements With Other Institutions: Students may take classes on other University of California system campuses.

Specialized Facilities: Forestry library; UC herbarium; greenhouses; growth chambers; experimental forest; wildlife research station; atomic adsorption spectrophotometer; UC Museum of Vertebrate Zoology Specimen Collection; Aldo Leopold Library.

**UNIVERSITY OF CALIFORNIA, DAVIS**
Admissions Office
Davis, CA 95616
916-752-0655

**DEPARTMENT OR PROGRAM:** Graduate Group in Ecology
Contact: Prof. R. Merton Love
Telephone: 916-752-6751

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.20 Minimum GRE Scores Required: NO

Other: Three letters of recommendation; advanced GRE test; approval by prospective major professor; coursework in biology, chemistry, physics, calculus, statistics, ecology; additional requirements depending on the specific program selected. Please request Ecology Group announcement.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | | | 0 | 0 |
| Ph.D. | 30 | YES | YES | NO | YES | NO | 0 | 0 |

Other: Thesis and nonthesis options are available for the MS. Please request detailed announcement.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | | 27 | 13 |
| Ph.D. | | | | | 123 | 25 |

Other: There are 21 teaching and 36 research assistantships available for the MS and PhD students combined.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 34 | 22 | 5 | 35 | | 4 |
| Ph.D. | 36 | 17 | 29 | | 16 | 1 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: The Ecology Group offers 11 courses and has 160 affiliated faculty. Its strength is its interdisciplinary nature. Most courses are taken in Departments.

Formal Teaching/Research Arrangements With Other Institutions: Joint PhD program with San Diego State University Biology Department.

Specialized Facilities: 111-acre arboretum, primate research center, Bodega Marine Lab, 277-acre Field Study Reserve.

**UNIVERSITY OF CALIFORNIA, LOS ANGELES**
405 Hilgard Avenue
Los Angeles, CA 90024
213-825-1711

**DEPARTMENT OR PROGRAM**: Biology (60+ faculty)
Contact: David Chapman
Telephone: 213-825-4373

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours Teach |
|---|---|---|---|---|---|---|---|---|
| M.S. | | NO | YES | NO | NO | NO | 0 | 0 |
| Ph.D. | 0 | NO | YES | NO | YES | YES | 2 | 6 |

Other: Satisfy 5-member committee of breadth & depth of candidates's knowledge of ecology and related matters.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | No information available. | | | | | |
| Ph.D. | | | 4 | 5 | 15 | 4 |

Other: There are 55 teaching and 15 research assistantships available for the entire Biology Department.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | No information available. | | | | | |
| Ph.D. | 10 | 15 | 50 | | 15 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Broad range of ecological interests covered by faculty; broad range of field sites and labs for research.

Formal Teaching/Research Arrangements With Other Institutions: Part of network of 9 UC campuses, with formal teaching and research arrangements with many other US and foreign schools.

Specialized Facilities: Very large & comprehensive biomedical library, herbarium, greenhouses, botanical garden, animal housing facilities, many field reserves and stations, computing facilities.

**UNIVERSITY OF CALIFORNIA, RIVERSIDE**
Riverside, CA 92521
714-787-3313

**DEPARTMENT OR PROGRAM**: Botany and Plant Science (28 faculty)
Contact: I. P. Ting
Other Programs Offering Graduate Education in Ecology: Biology (20 faculty), contact V. H. Shoemaker; Soils and Environmental Science (26 faculty), contact W. Jarrell.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.20 — Minimum GRE Scores Required: NO
Other: Chemistry, physics, calculus, organic chemistry, biochemistry, soil science, general botany, genetics, plant physiology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | | NO | | YES | 0 | 0 |
| Ph.D. | | YES | YES | YES | YES | YES | YES | |

Other: Programs are defined by individual committee. Thesis and non-thesis options are available for M.S.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 3 | 2 | 2 | |
| Ph.D. | | | | 5 | 2 | |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Agriculture sciences - ecology per se is a minor subject here.

Specialized Facilities: Good library due to Agrcultural Experiment Station; regional herbarium, many greenhouses, several agriculture field stations, Univ. of Cal. Natural Reserve System, campus computing facility, excellent equipment support thru agricultural experiment station.

**UNIVERSITY OF CALIFORNIA, SAN DIEGO**
Dept. of Biology, C-016
La Jolla, CA 92093
619-452-3835

**DEPARTMENT OR PROGRAM**: Biology (6 faculty)
Contact: rotates among faculty

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | 0 | NO | YES | NO | YES | YES | 1/yr | 10 |

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | | | 5 | 5 | 12 | 3 |

Other: Ecology students are admitted competitively to the dept. as a whole. All students are treated the same and support is guaranteed for 4 yrs.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | | | 25 | 50 | 25 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Great strength - opportunity for individual creative research; faculty strength - quantitative and theoretical ecology, evolution and sociobiology; students typically combine laboratory and theoretical work with exotic-site field work.

Formal Teaching/Research Arrangements With Other Institutions: Free exchange with Scripps Institution of Oceanography and Center for Reproduction of Endangered Species (San Diego Zoo). Visiting faculty of international standing offer many seminar courses.

Specialized Facilities: Appropriate modern research facilities.

**UNIVERSITY OF CALIFORNIA, SANTA CRUZ**
Graduate Division, Applied Sciences
Santa Cruz, CA 95064
408-429-2510

**DEPARTMENT OR PROGRAM:** Biology/Agroecology Program (2 faculty)
Contact: Stephen R. Gliessman
Telephone: 408-429-4051

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | | YES | YES | YES | YES | YES | | 13 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 2 | 3 | 4 | 4 | 6 | 2 |

**RECE"T PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 10 | 20 | 30 | 10 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Agroecology, microbial ecology, allelopathy, traditional agroecosystems in Latin America, ecology of intercrop systems, habitat management; tropical agroecology in Costa Rica.

Formal Teaching/Research Arrangements With Other Institutions: Collaborative research with UC Berkeley (Biol. Control Unit) & the Universidad Iberoamericana in Mexico City; formal involvement in Organi-zation for Tropical Studies.

Specialized Facilities: 25-acre research and training farm with research lab, managed organically for 13 years, 4-acre garden site at which intensive biodynamic techniques were used for 18 years. Direct contacts with numerous farmers for on-farm trials; greenhouse facility.

**UNIVERSITY OF CALIFORNIA, SANTA CRUZ**
Graduate Division Office
Santa Cruz, CA 95064
408-429-2301

**DEPARTMENT OR PROGRAM:** Biology/Ecology PhD Program (11 faculty)
Contact: Robert S. Edgar
Telephone: 408-429-2385

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Strong background in biology and basic science.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | 20 | NO | YES | YES | YES | YES | 2 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 25 | 25 | 5 | 5 | 50 | 10 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 15 | 5 | 21 | 44 | 15 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecology, plant-herbivore interactions; tropical ecology; agroecology; behavioral ecology/sociobiology.

Formal Teaching/Research Arrangements With Other Institutions: Joint course in Marine Biology taught at Bodega Bay Marine Lab with UC Davis, UC Berkeley and UC Santa Cruz participating.

Specialized Facilities: Big Creek Ecological Preserve; Long Marine Laboratory; greenhouse; arboretum; agroecology farm & research facility; Ano Nuevo State Reserve.

**UNIVERSITY OF CALIFORNIA, SANTA CRUZ**
Graduate Division Office
Santa Cruz, CA 95064
408-429-2301

**DEPARTMENT OR PROGRAM:** Marine Science MS Program (4 faculty)
Contact: Kenneth W. Bruland
Telephone: 408-429-4596

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Organic chemistry, physics, general biology, earth science, computer programming, statistics, calculus. The equivalent of a BS in a science.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 20 | YES | NO | NO | YES | YES | 0 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 2 | 2 | 2 | 20 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 33 | | | 42 | 3 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecology, plant-herbivore interactions; tropical ecology; agroecology; behavioral ecology/sociobiology.

Formal Teaching/Research Arrangements With Other Institutions: Joint course in Marine Biology taught at Bodega Bay Marine Lab with UC Davis, UC Berkeley and UC Santa Cruz participating.

Specialized Facilities: Big Creek Ecological Preserve; Long Marine Laboratory; greenhouse; arboretum; agroecology farm & research facility; Ano Nuevo State Reserve.

**UNIVERSITY OF CHICAGO**
Dept. of Biology, ALAB112, 940 E. 57th Street
Chicago, IL 60637
312-962-1960

**DEPARTMENT OR PROGRAM**: Biology (16 faculty)
Contact: Brian Charlesworth
Telephone: 312-962-8933

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: NO
Other: Undergraduate preparation in biology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | 27 | NO | YES | NO | YES | YES | 0 | 0 |

Other: One course in biochemistry.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 100 | 30 | 5 | 5 | 30 | 6 |

Other: Research assistantships and fellowships provide the primary source of student support. Teaching assistantships are available to supplement the research funds.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | | 5 | 85 | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology, evolutionary biology, population and ecological genetics, plant-animal interactions, physiological ecology, tropical ecology, behavioral ecology.

Formal Teaching/Research Arrangements With Other Institutions: Member: Organization for Tropical Studies, CIC (Big Ten Scholar exchange program); students and faculty can work at virtually any other institution on earth. Formal ties with Field Museum and Brookfield Zoo.

Specialized Facilities: The Department is equipped with facilities necessary for a wide variety of contemporary research methods.

**UNIVERSITY OF COLORADO**
EPO Biology Department, Box 334
Boulder, CO 80309
303-492-8981

**DEPARTMENT OR PROGRAM**: Dept. of Environmental, Population, and Organismic Biology (32 faculty)
Contact: Dr. Mike Breed
Telephone: 303-492-8981

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 2.75 Minimum GRE Scores Required: NO
Other: Students are usually admitted to work with a specific major professor, but may change later.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 18 | NO | YES | NO | YES | YES | 2 | 20 |
| Ph.D. | 30 | NO | YES | YES | YES | YES | 2 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 9 | 4 | 4 | 2 | 24 | 8 |
| Ph.D. | 58 | 12 | 4 | 4 | 47 | 11 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 2 | | 25 | 50 | | 23 |
| Ph.D. | | 2 | 90 | | 5 | 3 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: All aspects of population ecology, evolutionary ecology, geographical ecology, ecological genetics, plant and vertebrate ecophysiology, ethology.

Formal Teaching/Research Arrangements With Other Institutions: Strong links with Rocky Mtn Biological Lab (Gothic, CO), Research Ranch (Elgin, AZ), and University of Mexico (UNAM - Mexico).

Specialized Facilities: Alpine Field Station, CRTs and printer in building linked to University Computer Center; new research greenhouse; walk-in environmental chambers; animal care facility; outstanding shared electrophoretic lab; major regional herbarium.

**UNIVERSITY OF DELAWARE**
Office of Graduate Studies
Newark, DE 19716

**DEPARTMENT OR PROGRAM**: School of Life Sciences/Ecology Program (9 faculty)
Contact: L. E. Hurd
Telephone: 302-451-2277

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 1200 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 5 | 2 | 4 | 5 | 5 | |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 50 | | 40 | | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population biology, community structure, evolutionary ecology.

Formal Teaching/Research Arrangements With Other Institutions: Joint appointment exchange with faculty in Dept. Entomology and Applied Ecology, College of Agriculture, and College of Marine Studies.

Specialized Facilities: Marine field station in Lewes, DE; experimental (terrestrial) fields owned by College of Agriculture.

**UNIVERSITY OF FLORIDA**
Department of Botany
Gainesville, FL 32611
904-392-1175

**DEPARTMENT OR PROGRAM:** Botany (18 faculty)
Contact: Prof. Jack Ewel
Telephone: 904-392-1175
Other Programs Offering Graduate Education in Ecology: Forestry (16 faculty), contact Pat Reed, 904-392-4850.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: Verb. 550, Quant. 550

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 1 | 15 |
| Ph.D. | 90 | NO | NO | YES | YES | YES | 2 | 15 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 5 | 3 | 3 | 25 | 10 |
| Ph.D. | 15 | 5 | 5 | 5 | 25 | 5 |

Other: These figures apply to the Biology Department as a whole.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | 25 | | 25 | | |
| Ph.D. | 25 | 25 | 40 | | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Tropical ecology, forestry, conservation.

Formal Teaching/Research Arrangements With Other Institutions: Member of the Organization for Tropical Studies; Marie Selby Botanical Garden; Fairchild Garden.

Specialized Facilities: Florida State Museum; Seahorse Key Biological Station; herbarium; green-houses; easy access to computers; abundant nearby nature reserves; Welaka Research and Education Center; Austin Cary Forest; the Ordway Biological Preserve; Whitney Marine Lab.

**UNIVERSITY OF FLORIDA**
135 Tigert Hall
Gainesville, Florida 32611
904-392-1365

**DEPARTMENT OR PROGRAM**: Department of Zoology (25 faculty)
Contact: Dr. Frank G. Nordlie
Telephone: 904-392-1107

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1200 verb. & quant. combined
Other: Chemistry through organic, calculus, physics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | NO | YES | 1 | 9 |
| Ph.D. | 90 | NO | YES | YES | YES | YES | 2 | 9 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 13 | 2 | 3 | 3 | 15 | 3 |
| Ph.D. | 28 | 5 | 6 | 6 | 48 | 8 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population, physiological, community, behavioral, and evolutionary ecology.

Formal Teaching/Research Arrangements With Other Institutions: Extensive interactions with Florida State Museum, including access to collections.

Specialized Facilities: New science library; herbarium housed in Florida State Museum; Whitney Marine Laboratory; several greenhouses; field station at Seahorse Key, FL; miscellaneous computers and specialized equipment.

**UNIVERSITY OF GEORGIA**
Graduate Admissions
Athens, GA 30602
404-542-1787

**DEPARTMENT OR PROGRAM**: Ecology Degree Program
Contact: Dr. William Wiebe
Telephone: 404-542-7832
Other Programs Offering Graduate Education in Ecology: Botany Dept. (27 faculty), contact Gary D. Kochert, 404-542-3732.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: Verb. 500, Quant. 500

Other: B.S. degree in biological science or equivalent. An entering student with an MS should have a GPA of at least 3.5.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | 50 | NO | YES | YES | YES | YES | 0 | 0 |

Other: Language requirement may be met with a research skill (statistics, computer courses, or language).

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 16 | 23 | | 5 | 45 | 8 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 4 | 17 | 35 | 18 | 26 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecosystem ecology, systems and theoretical ecology, populations, community and process level ecology. Discipline-oriented studies (i.e. microbial ecology, plant ecology, insect ecology). There are 35 faculty participating in this interdisciplinary program; all have appointments in University Departments.

Specialized Facilities: Field stations (cooperative) in mountains, coastal plains, swamp, coastal marshes, and others by arrangement. Permanent facility at Savannah River Ecology Laboratory; local field sites at the Horseshoe Bend Facility.

**UNIVERSITY OF GEORGIA**
Graduate Admissions, 534 Graduate Studies Bldg.
Athens, GA 30602
404-542-1787

**DEPARTMENT OR PROGRAM**: School of Forest Resources/Forest Biology, Forest Water Resources, and Wildlife and Fisheries Programs (19 faculty)
Contact: Dr. Klaus Steinbeck, Graduate Coordinator
Telephone: 404-542-2686

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO
Other: Combined GRE score of 1000 preferred for MS, 1200 for PhD. Course requirements vary with specific degree program.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 40 | YES | NO | NO | YES | YES | 0 | 13 |
| Ph.D. | 45 | YES | NO | YES | YES | YES | 0 | 13 |

Other: Three-hour research methods course.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 3 | 30 | 9 |
| Ph.D. | | | 4 | 4 | 10 | 3 |

Other: There are 5 teaching and 35 research assistantships for MS & PhD students combined.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 46 | 7 | 22 | | 5 |
| Ph.D. | 21 | 49 | 22 | | 3 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: General coupling of applied and basic forest ecology; environmental physiology; forest soils; wildlife, fisheries, and water resources programs; forest productivity and management; fish and wildlife management; hydrology.
Formal Teaching/Research Arrangements With Other Institutions: US Fish and Wildlife Service (Cooperative Fish and Wildlife Research Unit); USDA Forest Service (Coweeta Hydrologic Laboratory, N.C.); DOE Savannah River Ecology Laboratory; UGA Institute of Ecology.
Specialized Facilities: A 3-building complex, one building devoted to graduate research; 4 research forests covering over 20,000 ac, including the Thompson Mills Forest and Arboretum, and the Whitehall and B.F. Grant Forests. Labs & greenhouses have state-of-the-art equipment.

**UNIVERSITY OF GEORGIA**
Biological Sciences Building
Athens, GA 30602
404-542-3310

**DEPARTMENT OR PROGRAM:** Zoology Department (30 faculty)
Contact: Dr. G. Patel
Telephone: 404-542-3310

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: Verb. 600, Quant. 600

Other: One year of math and physics; two years of chemistry.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | NO | YES | NO | YES | YES | 1 | 13 |
| Ph.D. | 45 | NO | YES | YES | YES | YES | 1 | 13 |

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 14 | 5 | 2 | 3 | 20 | 7 |
| Ph.D. | 13 | 12 | 4 | 4 | 25 | 4 |

Other: A PhD candidate entering with an MS can expect to spend 3-4 yrs. in program with 3 yrs. of support. A PhD candidate entering with a BS will probably spend 4-5 yrs. in program with 5 yrs. support.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 15 | | 30 | | 40 |
| Ph.D. | | 25 | 25 | | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology; community ecology; systems ecology; theoretical ecology and modeling; behavioral ecology.

Formal Teaching/Research Arrangements With Other Institutions: Organization for Tropical Studies; several staff members at Savannah River Ecology Laboratory have faculty appointments in Zoology Department and supervise graduate students at SREL.

Specialized Facilities: Skidaway Marine Station and Sapelo Marine Station operated by University; ecology research programs at Savannah River Ecology Laboratory, Coweeta Hydrological Station, Okefenokee Swamp and Horse Shoe Bend Field Station.

**UNIVERSITY OF GUELPH**
Department of Zoology
Guelph, Ontario, Canada, N1G 2W1
519-824-4120

**DEPARTMENT OR PROGRAM**: Zoology (30 faculty)
Contact: Dr. R. C. Anderson
Telephone: 519-824-4120

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | NO | NO | NO | YES | YES | | |
| Ph.D. | 0 | NO | YES | | YES | YES | | |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 50 | 15 |
| Ph.D. | | | 3 | 3 | 20 | 5 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic sciences, wildlife ecology, physiology, parasitology.

**UNIVERSITY OF HOUSTON**
Department of Biology
Houston, TX 77004
749-1589

**DEPARTMENT OR PROGRAM:** Biology/Program in Evolutionary Biology/(5 faculty)
Contact: Guy Cameron
Telephone: 749-1196

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Other: A score of 50% or better is also required on the advanced biology GRE test.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 1 | 20 |
| Ph.D. | 0 | YES | YES | NO | YES | YES | 1 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 3 | 3 | 3 | 15 | 4 |
| Ph.D. | 10 | 3 | 5 | 6 | 10 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | | | 60 | | 20 |
| Ph.D. | | 20 | 30 | | 20 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Community ecology, evolution.

Formal Teaching/Research Arrangements with Other Institutions: Interinstitutional agreement with Rice Univ., Baylor Univ., University of Texas School of Public Health.

Specialized Facilities: Field station, greenhouse, micro & mainframe access.

**UNIVERSITY OF IDAHO**
Admissions Office
Moscow, ID 83843
208-885-6326

**DEPARTMENT OR PROGRAM**: Biological Sciences (16 faculty)
Contact: Prof. A. W. Rourke
Telephone: 208-885-6280

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.30
GRE Required: YES — Minimum GRE Scores Required: 1200 verb. & quant. combined

Other: GPA and GRE requirements may be waived by admission committee. The required GPA of 3.3 applies only to math and science courses.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | YES | YES | | |
| Ph.D. | 78 | NO | YES | YES | YES | YES | | |

Other: Presentation and defense of research proposal constitutes the qualifying exam. There are distribution requirements for coursework, but specific courses are not required of all students.

**STUDENT PROFILE** - No information available.

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Formal Teaching/Research Arrangements With Other Institutions: We have cooperative arrangements with the nearby Washington State University.

Specialized Facilities: Plant physio-ecology is adequately equipped for lab, controlled environment and field research. No information available for other ecological areas.

**UNIVERSITY OF IDAHO**
Director of Admissions, 104 Ad. Office Building
Moscow, ID 83843
208-885-6326

**DEPARTMENT OR PROGRAM:** Fish and Wildlife Dept. (12 faculty)
Contact: Ernest Ables
Telephone: 208-885-6434

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 78 | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | | 3 | 3 | 42 | 15 |
| Ph.D. | 2 | | 3 | 3 | 20 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 40 | | 30 | | 15 |
| Ph.D. | 15 | 30 | 30 | | 25 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Applied ecology, animal ecology, population dynamics, ecology of large mammals and carnivores.

Formal Teaching/Research Arrangements With Other Institutions: Exchange courses and seminars with Washington State University, 8 miles away.

Specialized Facilities: 7100-acre experimental forest; field stations on Priest River, Payette Lake, and in the River-of-No-Return Wilderness, 35 acre forest nursery and greenhouse facility, practically unlimited access to mainframe and micro-computer facilities.

**UNIVERSITY OF IDAHO**
Coordinator of Graduate Programs, College of Forestry
Moscow, ID 83843
208-885-6126

**DEPARTMENT OR PROGRAM**: Forest Resources (24 faculty)
Contact: David Adams
Telephone: 208-885-7952
Other Programs Offering Graduate Education in Ecology: Wildland Recreation (5 faculty), contact William McLaughlin, 208-885-6659; Range Resources (8 faculty), contact David Bryant, 208-885-6537.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.80
Other: Each application is examined individually. If accepted, "deficiency" courses are specifiied in the study plan.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | | YES | | 20 |
| Ph.D. | 78 | NO | NO | NO | YES | YES | | 20 |

Other: Thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 5 | 3 |
| Ph.D. | | | 3 | 4 | 5 | 2 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Strong biological core and quantitative sciences. Five field stations throughout the state of Idaho.

Formal Teaching/Research Arrangements With Other Institutions: Cooperative with Washington State University, 8 miles away; access to specialized facilities of Idaho Fish and Game Department, U.S. Army Corps of Engineers, U.S. Forest Service, and industrial laboratories.

Specialized Facilities: Extensive laboratory facilities, two major libraries within eight miles of one another (University of Idaho and Washington State University), five field stations, herbarium.

**UNIVERSITY OF ILLINOIS, CHICAGO**
Graduate Secretary, Dept. Biol. Sci. (M/C066), Box 4380
Chicago, IL 60680
312-996-2212

**DEPARTMENT OR PROGRAM**: Biological Sciences/Ecology & Evolution (12 faculty)
Contact: Dr. E. Hadley
Telephone: 312-996-5687

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.20
GRE Required: YES — Minimum GRE Scores Required: Verb. 510, Quant. 590

Other: Differential calculus; genetics with lab; ecology and evolution; organic or physical chemistry or physics; physiology or structure-function. Score of 660 on biology GRE required; strong research experience may compensate for lower GRE scores.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | NO | NO | | YES | 2 | 18 |
| Ph.D. | | YES | YES | NO | YES | YES | 2 | 18 |

Other: Thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 0 | 3 | 4 | 4 | 1 |
| Ph.D. | 6 | 1 | 5 | 7 | 6 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 20 | | 40 | | 30 |
| Ph.D. | | 20 | 50 | | 20 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population ecology and genetics of *Tribolium* and of ciliates; life history theory; plant population biology; forest dynamics; cave ecology; insect-microbial interactions in soil; descriptive, experimental & theoretical community organization.

Formal Teaching/Research Arrangements With Other Institutions: Students take courses at the University of Chicago, & other midwestern universities at UIC tuition; cooperative research arrangements exist with the Field Museum, Shedd Aquarium and Morton Arboretum, Chicago Botanical Soc. & National Lakeshore (NPS).

Specialized Facilities: Woodworth Prairie Preserve. All students may have an account on the University IBM 3081D computer.

**UNIVERSITY OF ILLINOIS, URBANA**
506 S. Wright
Urbana, IL 61801
217-333-0302

**DEPARTMENT OR PROGRAM**: Dept. of Ecology, Ethology & Evolution (16 faculty)
Contact: George Batzli
Telephone: 217-333-7801

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00
Other: Calculus, ecology, biochemistry, physics, evolution, genetics. Deficiencies can be made up after arrival.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | NO | NO | NO | YES | NO | 0 | |
| Ph.D. | 64 | YES | YES | NO | YES | YES | 2 | 20 |

Other: For the Ph.D., courses in statistics, computer science, and advanced ecology are required.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 2 | 2 | 2 | 6 | 2 |
| Ph.D. | 15 | 12 | 5 | 5 | 30 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 20 | | 50 | | 30 |
| Ph.D. | | 10 | 60 | | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population biology, population and community ecology, behavioral ecology, evolutionary ecology.

Formal Teaching/Research Arrangements With Other Institutions: Some Illinois State Natural History Survey staff have affiliate appointments in our department.

Specialized Facilities: 5th largest library in USA; natural history museum & herbarium; Illinois State Natural History Survey on campus; field station within 5 miles of campus; extensive computer facilities, including supercomputer.

**UNIVERSITY OF ILLINOIS, URBANA**
312 Metallurgy and Mining
Urbana, IL 61801
217-333-8734

**DEPARTMENT OR PROGRAM:** Plant Biology (14 faculty)
Contact: Tom L. Phillips
Telephone: 217-333-3261
Other Programs Offering Graduate Education in Ecology: Ecology Program, School of Life Sciences, contact Linda Maxson, 217-333-3044.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | NO | NO | NO | | NO | 0 | |
| Ph.D. | 96 | NO | YES | YES | YES | YES | | |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 2 | | 3 | 3 | 3 |
| Ph.D. | 11 | 14 | | 6 | 25 | 3 |

Other: There is no limitation on the dura on of support.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | | | 80 | | 10 |
| Ph.D. | | | 20 | | 60 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological plant ecology, plant population ecology, community ecology, tropical plant ecology.

Specialized Facilities: Extensive library holdings in biology, ecology, agriculture, forestry, and natural history; large herbarium (world-wide and local); paleobotanical herbarium; new greenhouses with attached ecology/physiology lab; university-owned study sites.

**UNIVERSITY OF IOWA**
Department of Biology
Iowa City, IA 52242
319-335-1050

**DEPARTMENT OR PROGRAM**: Department of Biology (24 faculty)
Contact: Prof. John Menninger
Telephone: 319-335-1054
Other Programs Offering Graduate Education in Ecology: Department of Botany (12 faculty), contact Dr. Wayne Carlson, 319-335-1325; Ecology and Evolutionary Biology Program (12 faculty), contact Dr. Hank Howe/Steve Hendrix, 319-335-1065.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: Verb. 600, Quant. 600
Other: Calculus, physics, organic chemistry.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | | | 1 | 20 |
| Ph.D. | 72 | NO | YES | NO | YES | YES | 1 | 20 |

Other: All graduate students take 4 diagnostic examinations when they enter; student may be asked to fill in major gaps by taking a course or by studying on their own. Thesis and non-thesis options available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 2 | 4 | 3 | 3 | 1 |
| Ph.D. | | 2 | 6 | 6 | 9 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 14 | 28 | 14 | 43 | | |
| Ph.D. | 10 | 10 | 30 | | 40 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Tropical biology, plant-animal interactions.

Formal Teaching/Research Arrangements With Other Institutions: Exchange program with the Univ. of Chicago and the Big Ten Universities; member of Organization for Tropical Studies.

Specialized Facilities: Three biology buildings; separate biology, botany, and medical libraries; herbarium; greenhouses; MacBride Nature Recreation Area; Lakeside Laboratories; computer room for graduate students in biology.

**UNIVERSITY OF KANSAS**
Department of Botany
Lawrence, KS 66045
913-864-4301

**DEPARTMENT OR PROGRAM:** Botany (9 faculty)
Contact: Dr. C. Haufler
Telephone: 913-864-4301

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required:

GRE Required: YES
Minimum GRE Scores Required: Verb. 550, Quant. 550

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | | YES | 2 | 20 |
| Ph.D. | 70 | NO | YES | NO | YES | YES | 4 | 20 |

Other: Thesis and nonthesis options available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 5 | 3 | 3 | 8 | 2 |
| Ph.D. | 3 | 9 | 5 | 5 | 12 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 20 | | 40 | | 20 |
| Ph.D. | 20 | 20 | 40 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology, systematics & evolutionary biology.

Formal Teaching/Research Arrangements With Other Institutions: Organization for Tropical Studies.

Specialized Facilities: Nelson Environmental Study Area for ecological research.

**UNIVERSITY OF KANSAS**
Department of Systematics and Ecology, Haworth Hall
Lawrence, KS 66045
913-864-4301

**DEPARTMENT OR PROGRAM**: Ecology (27 faculty)
Contact: Kenneth B. Armitage
Telephone: 913-864-4301
Other Programs Offering Graduate Education in Ecology: Entomology (6 faculty), contact George Byers, 913-864-4301.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | | | YES | | 20 |
| Ph.D. | 80 | NO | YES | | YES | YES | 4 | 20 |

Other: Fluency in 2 languages and/or research skills (i.e. computer programming, electrophoresis) is required. Thesis and nonthesis options available for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 10 | 2 | 2 | 20 | 8 |
| Ph.D. | 15 | 25 | 5 | 5 | 40 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 10 | | 70 | | 10 |
| Ph.D. | 10 | 10 | 40 | | 20 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population biology; aquatic ecology; behavioral ecology; systematics and evolutionary biology.

Formal Teaching/Research Arrangements With Other Institutions: Oranization for Tropical Studies (activities in Costa Rica).

Specialized Facilities: Systematics museums (modern and paleo vertebrates, entomology, herbarium, and invertebrate paleo); 3 greenhouses; 3 field areas (Nelson Environmental Studies Area, Natural History Reservation, Baldwin Woods); good library; PC's and terminals to campus mainframes; 10 experimental ponds.

**UNIVERSITY OF MAINE**
Graduate School, 2 Winslow Hall
Orono, ME 04469
207-581-3218

**DEPARTMENT OR PROGRAM:** Botany and Plant Pathology (15 faculty)
Contact: Dr. Robert L. Vadas
Telephone: 207-581-2978
Other Programs Offering Graduate Education in Ecology: Zoology (24 faculty), contact Dr. James McCleave, 207-581-2551.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: Verb. 500, Quant. 500

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | NO | NO | YES | YES | 1 | 10 |
| Ph.D. | 48 | YES | YES | YES | YES | YES | 1 | 10 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 3 | 2 | 3 | 10 | 4 |
| Ph.D. | 2 | 2 | 4 | 5 | 4 | 1 |

Other: These figures refer only to students with ecological emphasis.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 20 | | 20 | | 40 |
| Ph.D. | New program; insufficient data. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Terrestrial and wetland plant ecology; paleoecology; biogeochemistry; limnology; paleolimnology; physiological ecology; algal and marine ecology; population genetics.

Specialized Facilities: Herbarium, greenhouses, growth and culture chambers, running sea water and aquaculture systems, marine field station (Walpole, ME), laboratories and reference collections for paleoecology and paleolimnology, photographic labs, boats, corers.

**UNIVERSITY OF MAINE**
Orono, ME 04469
207-581-3218

**DEPARTMENT OR PROGRAM**: Oceanography Program (11 faculty)
Contact: L. K. Fink
Telephone: 207-563-3146

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: Verb. 550, Quant. 550

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | YES | YES | NO | YES | YES | 0 | 0 |

Other: Oceanographic cruise.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 7 | 3 | 3 | 10 | 4 |
| Ph.D. | 0 | 5 | 4 | 4 | 5 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | | | 40 | | 10 |
| Ph.D. | 70 | | | | | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecological processes, especially benthic ecology.

Formal Teaching/Research Arrangements With Other Institutions: Some research opportunities with Bigelow Lab for Ocean Sciences.

Specialized Facilities: Program is conducted at Darling Center, the Marine Field Station of the University of Maine; SEM, CHN, scintillation and particle counters; AA; particle surface area analyzer, aquaculture facility, marine library, micro-computers, fluorescence microscopy.

**UNIVERSITY OF MAINE**
Graduate School, Winslow Hall
Orono, ME 04469
207-581-3218

**DEPARTMENT OR PROGRAM:** Department of Wildlife (7 faculty)
Contact: Ray B. Owen, Jr.
Telephone: 207-581-2863

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: Verb. 600, Quant. 600

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | NO | YES | YES | YES | YES | 2 | 8 |

Other: Detailed project proposal and a manuscript submitted for publication. A specialty may sometimes be substituted for a language.

**STUDENT PROFILE**

| | *Teaching* Assist-antships | *Research* Assistants/ Fellowships | *Years of* Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 13 | 3 | 3 | 14 | 6 |
| Ph.D. | 1 | 5 | 3 | 3 | 6 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 50 | | 30 | | 10 |
| Ph.D. | | 60 | 30 | | | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Animal ecology, especially in forested and marine ecosystems; impacts of forestry on community organization; influence of environmental contaminants (e.g. acid rain, herbicides) on wildlife communities.

Specialized Facilities: Large animal (e.g., moose) holding facilities; experimental forest lands (> 3,000 acres); Holt Forest for forestry and wildlife research; environmental chambers; computer graphics lab; small mainframe in addition to University computer facilities.

**UNIVERSITY OF MANITOBA**
Faculty of Graduate Studies
Winnipeg, Man. R35 2N2, Canada
204-474-9377

**DEPARTMENT OR PROGRAM**: Entomology (7 faculty)
Contact: Dr. R. A. Brust
Telephone: 204-474-9257
Other Programs Offering Graduate Education in Ecology: Zoology (19 faculty), contact Dr. J. H. Gee, 204-474-9245; Botany (12 faculty), contact Dr. J. Reid, 204-474-9368.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES GRE Required: NO
Score: 2.50
Other: Equivalent knowledge to that obtained from BS degree with entomology major.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 12 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 12 | YES | YES | YES | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 9 | 2 | 2 | 16 | 5 |
| Ph.D. | 3 | 9 | 3 | 3 | 12 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 30 | | 60 | | |
| Ph.D. | | 60 | 30 | | | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Insect ecology with emphasis in the following areas: ecology of crop, livestock, stored grain pests; aphids; aquatic insects; carabid beetles; pollination ecology.

Formal Teaching/Research Arrangements With Other Institutions: Adjunct professors in Agriculture Canada Research Station and in research facility of Canada Department of Fisheries and Oceans and (recently), Atomic Energy Canada, Ltd.

Specialized Facilities: Two in-house research farms including arboretum and apiary; facilities for handling radioactive materials.

**UNIVERSITY OF MARYLAND, BALTIMORE COUNTY**
Catonsville, MD 21228
301-455-3537

**DEPARTMENT OR PROGRAM:** Biological Sciences (25 faculty)
Contact: Keith R. Porter
Telephone: 301-455-3668
Other Programs Offering Graduate Education in Ecology: Marine, Estuarine, and Environmental Science (6 faculty), contact Thomas W. Cronin, 301-455-3449.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | YES | YES | NO | YES | YES | 2 | 20 |

Other: Distribution requirement for coursework. Graduate seminars for PhD.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 5 | | 3 | 5 | 5 |
| Ph.D. | 15 | 10 | | 5 | 10 | 10 |

Other: Duration of student support is not limited.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 10 | | 75 | | 5 |
| Ph.D. | 30 | 12 | 8 | | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Estuarine population biology and physiological ecology; woodland community ecology; environmental aspects of sensory physiology (vision, chemical senses).

Formal Teaching/Research Arrangements With Other Institutions: The University of Maryland system, including several field laboratories.

Specialized Facilities: Good library, greenhouse, excellent fresh and salt water facilities, outstanding EM center, field laboratories in Appalachians & on the Chesapeake at 2 locations, excellent access to Baltimore/Washington region.

**UNIVERSITY OF MARYLAND, COLLEGE PARK**
Admissions and Records
College Park, MD 20742
301-454-3141

**DEPARTMENT OR PROGRAM:** Botany (22 faculty)
Contact: Dr. Glenn Patterson
Telephone: 301-454-3811
Other Programs Offering Graduate Education in Ecology: Zoology, contact Dr. Jogn Corliss, 301-454-3202; Entomology, contact Dr. Allen Steinhauer, 301-454-3843.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES — Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 2 | 0 |
| Ph.D. | 12 | YES | YES | NO | YES | YES | 2 | 0 |

Other: MS requires one academic year of residence; PhD requires 2 years of residence following the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | | 20 | 7 |
| Ph.D. | | | 3 | | 40 | 4 |

Other: Numbers above refer to all botany graduate students. We presently have 2 MS and 4 PhD students in the Ecology Program in Botany. There are 28 teaching and 8 research assistantships for all botany graduate students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 25 | 25 | 25 | | 25 |
| Ph.D. | | 70 | | | 30 | |

**STRENGTHS AND SPECIALTIES**
Subject Matter Strengths: Physiological plant ecology.

Formal Teaching/Research Arrangements With Other Institutions: Beltsville Agricultural Reseach Center; Patuxent Wildlife Research Center; Smithsonian Environmental Research Center.

Specialized Facilities: Eight campus libraries, including a graduate library, off-campus libraries in vicinity include the Library of Congress, National Library of Medicine, National Agricultural Library; the Dept. of Botany has its own herbarium; Smithsonian Herbarium is less than 10 miles from campus.

**UNIVERSITY OF MARYLAND, COLLEGE PARK**
Graduate Admissions Office
College Park, MD 20742
301-454-3141

**DEPARTMENT OR PROGRAM:** Marine-Estuarine-Environmental Sciences
Contact: Prof. Robert Menzer
Telephone: 301-454-3714

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 12 | YES | YES | | YES | YES | 0 | 0 |

Other: Course distribution requirements in biology, chemistry, physical systems, and management; competence in statistics.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 10 | | 2 | 50 | 10 |
| Ph.D. | 2 | 8 | | 4 | 50 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 25 | | 50 | | |
| Ph.D. | 10 | 10 | | | 80 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Interactions between biological systems and physicochemical systems in the marine, estuarine, and terrestrial environments.

Specialized Facilities: Center for Environmental and Estuarine Studies (Chesapeake Biological Lab, Solomons; Horn Point Environmental Lab, Cambridge; Appalachian Environmental Lab, Frostburg); Truitt Controlled Environment Lab; 65 and 52-foot research vessels.

**UNIVERSITY OF MASSACHUSETTS, AMHERST**
Graduate Admissions Office
Amherst, MA 01003
514-545-0721

**DEPARTMENT OR PROGRAM**: Zoology (28 faculty)
Contact: M. S. Kaulenas
Telephone: 413-545-2602
Other Programs Offering Graduate Education in Ecology: Forestry and Wildlife Management (12 faculty), contact Mark W. Sayre, 413-545-2757; Entomology (5 faculty), contact Joseph S. Elkinton, 413-545-2284.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 2.75 — Minimum GRE Scores Required: NO
Other: Recommended - broad background in biology, chemistry through organic, physics (1 yr), mathematics or statistics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | | YES | 2 | 8 |
| Ph.D. | | NO | YES | NO | YES | YES | 2 | 8 |

Other: Thesis and nonthesis options available for the MS; some research required for both. A PhD candidate entering with an MS is exempt from qualifying exam.

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 2 | 2 | 3 | 10 | 2 |
| Ph.D. | 8 | 4 | 4 | 6 | 12 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | | 10 | 15 | | 50 |
| Ph.D. | 23 | 15 | 31 | | 8 | 23 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioral ecology and sociobiology (especially predator-prey); physiological ecology of fishes; microbial population ecology; marine benthic ecology; limnology (paleolimnology; nutrient cycling).
Formal Teaching/Research Arrangements With Other Institutions: Consortium with Amherst, Smith, Mt. Holyoke and Hampshire for coop Ph.D.; Nat. Marine Fisheries Labs at Woods Hole, MA and Milford, CT; Smithsonian Tropical Research Inst.; Mass. Game and Fish Hatcheries; 5-college program in Coastal and Marine Science; US Wildlife & Fisheries Salmon Restoration Project, Conn. River.
Specialized Facilities: Outdoor aviaries and mammal pens; computerized lab for foraging behavior study; high speed camera; hatchery raceway for fish holding; swimming respirometers; CDC mainframes, PCs, access to super-computer; marine station, Gloucester, MA; experimental forest and lake of Dept. Forestry & Wildlife Management.

**UNIVERSITY OF MASSACHUSETTS, BOSTON**
Administration Bldg., Harbor Campus
Boston, MA 02125
617-929-8000

**DEPARTMENT OR PROGRAM:** Biology/Applied Marine Ecology Program (10 faculty)
Contact: Michael P. Shianis
Telephone: 617-929-8420

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 2.75 — Minimum GRE Scores Required: NO

Other: Introductory level courses in calculus, physics, & chemistry; intermediate level courses in genetics, physiology, ecology, and evolution.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | | |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 3 | 20 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 5 | 5 | | 20 | 70 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine ecology, evolutionary ecology, tropical ecology, microbial ecology, benthic ecology.

Specialized Facilities: Univ. of Mass/Boston is on Boston Harbor within easy reach of a wide variety of coastal marine habitats; extensive lab facilities; marine field stations at Gloucester and on Nantucket Island.

**UNIVERSITY OF MIAMI**
Director of Graduate Studies, Department of Biology
Coral Gables, FL 33124
305-284-3974

**DEPARTMENT OR PROGRAM**: Biology (26 faculty)
Contact: Jay Savage
Telephone: 305-284-3974

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | YES | YES | NO | YES | YES | 1 | 15 |
| Ph.D. | 60 | YES | YES | NO | YES | YES | 1 | 15 |

Other: Course in statistics.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | No terminal MS students. | | | | 3 | |
| Ph.D. | 15 | 7 | 5 | 5 | 26 | 2 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Tropical biology, plant ecology, behavioral ecology, plant-animal interactions, herpetology.

Formal Teaching/Research Arrangements With Other Institutions: Member, Organization for Tropical Studies and Smithsonian Tropical Research Institute.

Specialized Facilities: Morton Collectanea (phytochemistry reference collection); UNIVAC 1100; extensive ornithological, herpetological, and herbarium collections; 45 minutes from Everglades National Park; 10 minutes from Fairchild Tropical Gardens and subtropical forests.

**UNIVERSITY OF MICHIGAN**
2079 Natural Science Building
Ann Arbor, Michigan 48109
313-764-1443

**DEPARTMENT OR PROGRAM:** Dept. of Ecology & Evolutionary Biology (20 faculty)
Contact: John H. Vandermeer
Telephone: 764-1446

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.25
GRE Required: YES
Minimum GRE Scores Required: 1200 verb. & quant. combined

Other: Physics, calculus, organic chemistry, two years of a foreign language at the college level.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | YES | NO | | NO | 0 | 0 |
| Ph.D. | | YES | YES | YES | YES | YES | 2 | 25 |

Other: Oral preliminary exam for PhD; thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 12 | 1 | 2 | 2 | 12 | 6 |
| Ph.D. | 50 | 7 | 5 | 6 | 60 | 8 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 18 | | | 45 | | 37 |
| Ph.D. | | 6 | 34 | | 34 | 26 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, plant ecology, plant-animal interactions, behavioral ecology, systematics, evolutionary ecology.

Specialized Facilities: University herbarium and library; Matthei Botanical Gardens (research areas and greenhouses); biological station at Pellston; E.S. George Field Reserve plus other reserves; Museums of Zoology and Paleontology; Great Lakes Research Institute.

**UNIVERSITY OF MICHIGAN**
Office of Academic Programs
Ann Arbor, MI 48109
313-764-6453

**DEPARTMENT OR PROGRAM**: School of Natural Resources (31 faculty)

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: Verb. 550, Quant. 550

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 40 | YES | NO | NO | YES | NO | 0 | 0 |
| Ph.D. | | YES | NO | NO | YES | YES | 0 | 0 |

Other: PhD course hours vary depending upon previous academic work.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 45 | 44 | 1 | 2 | 140 | 65 |
| Ph.D. | 20 | 14 | 2 | 3 | 45 | 11 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 29 | 22 | 11 | 20 | | 18 |
| Ph.D. | 9 | 22 | 28 | | 6 | 35 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic/terrestrial resource science and management; landscape resource planning and management; natural resources and environmental policy; human impacts and change processes; biometics; multi-resource inventory.

Formal Teaching/Research Arrangements With Other Institutions: Member of Committee on Institutional Cooperation (CIC), a voluntary association of Big Ten Universities and the University of Chicago.

Specialized Facilities: Museums, botanical gardens (greenhouses, labs, classrooms, etc.), two field stations, extensive computer network (Amdahl 5860 mainframe, 30 hardwired PCs in School of Nat. Res.), computer-based digitizing and graphics facility; remote sensing laboratory.

**UNIVERSITY OF MINNESOTA, DULUTH**
UMD Admissions Office, 184 Dad B
Duluth, MN 55812
218-726-7271

**DEPARTMENT OR PROGRAM:** Biology Dept. (13 faculty)
Contact: M. Whiteside
Telephone: 218-726-7264

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 2.80 Minimum GRE Scores Required: NO
Other: General biology, cell biology, general ecology, genetics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 28 | NO | NO | NO | | YES | 0 | 0 |

Other: Thesis and nonthesis options available for the MS; seminar.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 9 | 1 | 2 | 2 | 15 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 20 | 10 | 30 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology.

Specialized Facilities: Olga Lakela herbarium, computer center, new greenhouse, research and field studies center.

**UNIVERSITY OF MINNESOTA, MINNEAPOLIS**
Dept. of Ecology & Behavioral Biology, 318 Church ST, SE
Minneapolis, MN 55455
612-625-4466

**DEPARTMENT OR PROGRAM**: Dept. of Ecology & Behavioral Biology (30 faculty)
Contact: Franklin H. Barnwell
Telephone: 612-625-4466

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Inorganic and organic chemistry, physics, calculus, biochemistry, genetics, plant & animal biology, physiology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 44 | NO | NO | NO | NO | YES | 0 | 0 |
| Ph.D. | | YES | YES | YES | YES | YES | 4 | 5 |

Other: Experience at a field station; competence in statistics.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 2 | 1 | 2 | 8 | 7 |
| Ph.D. | 16 | 20 | 5 | 6 | 6 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 5 | 40 | 5 | 35 | | 15 |
| Ph.D. | 6 | 9 | 44 | | 41 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population and evolutionary ecology, behavioral ecology, ornithology, limnology, paleoecology.

Formal Teaching/Research Arrangements With Other Institutions: Doctoral students may study up to a year at another CIC institution (Committee on Institutional Cooperation; Big Ten + Univ. Chicago) with no change in registration or fees. Member, Organization for Tropical Studies.

Specialized Facilities: Bell Museum of Natural History; Limnological Research Center; library system is 13th among American universities; Cedar Creek Natural History area (5000 acres, good research facilities, 35 miles north of campus); Lake Itasca Forestry and Biological Station.

**UNIVERSITY OF MINNESOTA, ST. PAUL**
110 Green Hall, 1530 N. Cleveland Avenue
St. Paul, MN 55108
612-624-3400

**DEPARTMENT OR PROGRAM:** Department of Forest Resources (23 faculty)
Contact: Alan Ek
Telephone: 612-373-0840
Other Programs Offering Graduate Education in Ecology: Department of Fisheries and Wildlife (11 faculty), contact Ira Adelman, 612-373-3029.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00
Other: An undergraduate degree in forestry is desirable, but prerequisites for advanced courses may be remedied early in the graduate program.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 44 | NO | NO | NO | | YES | 0 | 0 |
| Ph.D. | 18 | NO | YES | NO | YES | YES | 0 | 0 |

Other: Thesis and nonthesis options are available for the MS; both require some research.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 30 | 3 | 3 | 36 | 15 |
| Ph.D. | | 24 | 4 | 4 | 34 | 5 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Water quality, forest hydrology, tree physiology, forest biometry, and forest economics.

Formal Teaching/Research Arrangements With Other Institutions: Students can draw from a wide range of courses in many departments. Proximity to USDA Forest Servies North Central Experiment Station.

Specialized Facilities: New fully equipped water-quality/aquatic biology lab; forest hydrology, mycorrhizae, tree physiology, and tree genetics labs; greenhouse; field stations (Cloquet Forestry Center, Lake Itasca Forest & Biological Station); extensive computer facilities; superb library.

**UNIVERSITY OF MISSOURI, COLUMBIA**
130 Jesse Hall
Columbia, MO 65211
314-882-7786

**DEPARTMENT OR PROGRAM**: Division of Biological Science (36 faculty)
Contact: Dr. John David
Telephone: 314-882-3315

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 1 | 9 |
| Ph.D. | 84 | NO | YES | NO | YES | YES | 1 | 9 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 12 | 7 | 2 | 3 | 30 | 7 |
| Ph.D. | 12 | 7 | 4 | 5 | 25 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 14 | | | 28 | | 58 |
| Ph.D. | | | 25 | | 25 | 50 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioral ecology, community ecology.

Specialized Facilities: Tucker Prairie Research Area, greenhouses, herbarium.

**UNIVERSITY OF MISSOURI, COLUMBIA**
112 Stephen Hall
Columbia, MO 65211
314-882-7242

**DEPARTMENT OR PROGRAM:** Fisheries and Wildlife (9 faculty)
Contact: Dr. John R. Jones
Telephone: 314-882-3543

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: Verb. MS 40%, PhD 50%; Quant. MS 50%, PhD 60%

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 15 | 3 | 3 | 25 | 8 |
| Ph.D. | 1 | 9 | 4 | 4 | 10 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 13 | 59 | 11 | 9 | | 8 |
| Ph.D. | | 43 | 43 | | 14 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Stream ecology, water quality, pond management, reservoir limnology, waterfowl ecology, wetland ecology, upland birds & mammals, wildlife habitat.

Formal Teaching/Research Arrangements With Other Institutions: MO Agricultural Experiment Station; NC Forestry Experiment Station, US Forest Service; MO Cooperative Fish & Wildlife Res. Unit, US Fish & Wildlife Service; Columbia National Fisheries Research Lab; Missouri Dept of Conservation; MO Dept. of Natural Resources.

Specialized Facilities: University Forest (7310 acres), research and demonstration woods (80 acres), wildlife research area (2280 acres), wildlife lab, hardwood collection, waterfowl collection, Univ. MO Museum of Zoology, geographic resources center, greenhouses, various computers.

**UNIVERSITY OF MISSOURI, COLUMBIA**
112 Stephen Hall
Columbia, MO 65211
314-882-7242

**DEPARTMENT OR PROGRAM**: Forestry (18 faculty)
Contact: Dr. Gray Henderson
Telephone: 314-882-3372

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: Verb. MS 40%, PhD 50%; Quant. MS 50%, PhD 60%

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 9 | 3 | 3 | 19 | 7 |
| Ph.D. | 0 | 5 | 4 | 4 | 9 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 8 | 40 | 4 | 36 | | 12 |
| Ph.D. | 7 | 28 | 50 | | 7 | 7 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Forest ecology, tree physiology, forest soils, silviculture.

Formal Teaching/Research Arrangements With Other Institutions: MO Agricultural Experiment Station; NC Forestry Experiment Station, US Forest Service ; MO Cooperative Fish & Wildlife Research Unit, US Fish & Wildlife Service; Columbia National Fisheries Res. Lab; Missouri Dept of Conservation; MO Dept. of Natural Resources.

Specialized Facilities: University Forest (7310 acres), research and demonstration woods (80 acres), wildlife research area (2280 acres), wildlife lab, hardwood collection, waterfowl collection, Univ. MO Museum of Zoology, geographic resources center, greenhouses, various computers.

**UNIVERSITY OF MISSOURI, KANSAS CITY**
Student Services Bldg., 4825 Troost Avenue
Kansas City, MO 64110
816-932-4444

**DEPARTMENT OR PROGRAM**: Biology (6 faculty)
Contact: Daniel H. Stern
Telephone: 816-276-1385

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |

Other: Thesis and nonthesis options available for the MS; GRE is required prior to completion of degree.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 3 | 2 | 4 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 50 | | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Limnology; higher plant ecology; systematics of Central American fishes and reptiles.

Formal Teaching/Research Arrangements With Other Institutions: Can take courses w/o fee in conjunction with agreement with neighboring universities.

Specialized Facilities: Linda Hall Library of Science & Technology, a private major science library, is located on the campus; terrestrial and aquatic sites nearby for study; urbanizing area with associated problems and opportunities; basic laboratory and field equipment.

**UNIVERSITY OF MISSOURI, ST. LOUIS**
Graduate Admissions
St. Louis, MO 63121
314-553-5451

**DEPARTMENT OR PROGRAM**: Biology (16 faculty)
Contact: Dr. John Averett
Telephone: 314-553-6213

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 2.90
GRE Required: YES — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 3 | 2 | 3 | 9 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 10 | | 5 | 20 | 65 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology, evolution, and systematics; tropical biology.

Formal Teaching/Research Arrangements With Other Institutions: Joint graduate program with Missouri Botanical Garden with emphasis in tropical biology; students may take courses at Washington Univ. or St. Louis Univ.; research access to Tyson Research Center, an 800-ha ecological preserve owned by Washington University.

Specialized Facilities: Specialized laboratories for chemosystematics and electrophoresis; herbaria and library at Missouri Botanical Garden; research stations maintained by MBG in several tropical countries.

**UNIVERSITY OF MONTANA**
Graduate School, Main Hall
Missoula, MT 59812
406-243-6670

**DEPARTMENT OR PROGRAM:** Botany (9 faculty)
Contact: Dr. David Bilderback
Telephone: 406-248-5222

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO
Other: Beginning students take a diagnostic exam which is used to determine an individual program of study.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | NO | YES | NO | YES | YES | | |
| Ph.D. | 90 | NO | YES | NO | YES | YES | | |

Other: All students do a minimum level of teaching each year (one quarter per year).

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 3 | 10 | 2 |
| Ph.D. | | | 3 | 4 | 5 | 2 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Wildland processes, due to our access to all mountain life zones; vegetation dynamics stressed in teaching; new generation of systems ecologists & physiological ecologists are filtering into UM faculty, generating state-of-the-art coursework in ecology.

Formal Teaching/Research Arrangements With Other Institutions: Interaction with Montana State University at Bozeman.

Specialized Facilities: Forestry field station (Lubrecht School Forest) for outdoor teaching & research; major freshwater lab & teaching facility at Flathead Lake; Missoula campus has the basic library & computer facilities.

**UNIVERSITY OF MONTANA**
Graduate School
Missoula, MT 59812
406-243-2572

**DEPARTMENT OR PROGRAM**: Forestry (26 faculty)
Contact: Sidney Frissell
Telephone: 406-243-5521

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: Verb. 550, Quant. 550

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | YES | NO | NO | YES | NO | | |
| Ph.D. | 90 | YES | NO | NO | YES | YES | | |

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 7 | 2 | 2 | 46 | 7 |
| Ph.D. | 3 | 3 | 2 | 4 | 9 | 2 |

Other: The above numbers include all areas of forestry, wildlife, and range ecology.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 33 | 67 | | | | |
| Ph.D. | 20 | 80 | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Forest ecology, wildlife ecology, nutrient cycling in soils, physiological ecology, watershed studies.

Specialized Facilities: Field research station at Lubrecht; labs; greenhouse; library; soil, water, plant, range physiology labs on campus; numerous computers: 2 mainframes, micros; excellent laboratory facilities for ecology (soils, plants).

**UNIVERSITY OF MONTANA**
The Graduate School, University of Montana
Missoula, MT 59812
406-243-2572

**DEPARTMENT OR PROGRAM:** Zoology (10 faculty)
Contact: Don Jenni
Telephone: 406-243-5122
Other Programs Offering Graduate Education in Ecology: Wildlife Biology (26 faculty), contact Lee Metzgar, 406-243-5272; Environmental Studies (57 faculty), contact Tom Roy, 406-243-6273.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | NO | YES | NO | YES | YES | 1 | 15 |
| Ph.D. | 90 | NO | YES | YES | YES | YES | 1 | 15 |

Other: Departmental seminar(s).

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 1 | 2 | 3 | 17 | 4 |
| Ph.D. | 5 | 1 | 4 | 5 | 8 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 30 | 5 | 30 | | 15 |
| Ph.D. | 30 | 20 | 30 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Evolutionary ecology of vertebrates; nutrient cycling in streams and lakes; behavioral ecology; wildlife management; population genetics.

Specialized Facilities: Herbarium; vertebrate museum; biological station on Flathead Lake; Montana Cooperative Wildlife Research Unit; off-campus research facilities at ranch on the Eastern Rocky Mountain front; computer facilities.

**UNIVERSITY OF NEBRASKA, LINCOLN**
School of Biological Sciences
Lincoln, NE 68588
402-472-2720

**DEPARTMENT OR PROGRAM:** Biological Sciences/Ecology and Evolutionary Biology Section (20 faculty)
Contact: Kathleen Keeler
Telephone: 402-472-2710

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: NO
Other: Chemistry through organic, physics (2 sem), calculus (1 sem).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | YES | YES | 0 | 10 |
| Ph.D. | 45 | NO | YES | YES | YES | YES | 0 | 10 |

Other: Statistics.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 20 | 15 | 3 | 2 | 40 | 12 |
| Ph.D. | 15 | 15 | 4 | 4 | 30 | 6 |

Other: These figures are for the School of Biological Sciences as a whole.

**RECENT PROGRAM GRADUATES** - NO information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant-animal interactions, community ecology, prairie ecology, evolutionary ecology.

Specialized Facilities: Cedar Point Biological Station in w. Nebraska; native prairie preserves including 1300-acre Arapaho Prairie in Nebraska sandhills; greenhouse, growth chambers, Nebraska State Museum (national strengths in parasitology, paleontology and herbarium).

**UNIVERSITY OF NEBRASKA, LINCOLN**
Graduate Studies, 412 Administration
Lincoln, NE 68588
402-472-2875

**DEPARTMENT OR PROGRAM:** Forestry, Fisheries and Wildlife (10 faculty)
Contact: Dr. Gary Hergenrader
Telephone: 402-472-2944
Other Programs Offering Graduate Education in Ecology: Range Management, contact Dr. James Stubbendieck, 402-472-1519.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO
Other: Equivalent to BS in Wildlife or Biology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | YES | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 8 | 2 | 3 | 15 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 19 | 57 | | 24 | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Animal damage prevention and control; single species/habitat dynamics; effects of silt on aquatic ecosystems.

Specialized Facilities: Standard facilities are good to excellent in most areas; animal holding facilities are fair.

**UNIVERSITY OF NEBRASKA, OMAHA**
Admissions Office
Omaha, NE 68182
402-554-2393

**DEPARTMENT OR PROGRAM**: Biology/Ecology Program (7 faculty)
Contact: Dr. Barbara Hayhome
Telephone: 402-554-2641

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 36 | NO | NO | NO | YES | NO | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 12 | 0 | 2 | 6 | 15 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 50 | 10 | 5 | 5 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Field ecology, involving prairie and prairie/forest ecotonal communities particularly.

Formal Teaching/Research Arrangements With Other Institutions: Courses may be taken at the University of Nebraska - Lincoln.

Specialized Facilities: 160-acre re-established grassland research site managed by Biology Dept.; large sandhill prairie sites available for research within 6 hrs of Omaha. On-campus facilities include greenhouse, herbarium & access to VAX-VMS or IBM 360-60 computers.

**UNIVERSITY OF NEVADA**
Dept. of Biological Sciences, 4505 S. Maryland Parkway
Las Vegas, NV 89154
702-739-3443

**DEPARTMENT OR PROGRAM:** Biological Sciences (15 faculty)
Contact: Peter L. Starkweather
Telephone: 702-739-3399

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 50th percentile on both the verbal and quantitative tests

Other: For the MS, a GPA of 2.75 is required and there are no required minimum GRE scores. For the PhD, the advanced GRE test in Biology and 3 letters of recommendation are required.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | NO | YES | YES | YES | YES | 2 | 12 |

Other: Satisfaction of core requirements for MS students in environmental fields. PhD students must demonstrate professional competency in statistics and computing, language, and instruction.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 8 | 2 | 2 | 2 | 15 | 5 |
| Ph.D. | 2 | 2 | 4 | 4 | 2 | |

Other: The PhD is a new program which began in 1987 and thus has no graduates yet.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 20 | | 50 | | 15 |
| Ph.D. | New program. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology; arid lands biology; environmental physiology.
Formal Teaching/Research Arrangements With Other Institutions: Shared faculty with University of Nevada, Reno and Desert Research Institute.
Specialized Facilities: National Resource Collection Herbarium; fish research facility; access to analytical environmental chemistry laboratory; 3 desert biomes accessible: Mohave, Sonoran, Great Basin; major riverine system - Colorado.

**UNIVERSITY OF NEW HAMPSHIRE**
Graduate School, Horton Soc. Sci. Center
Durham, NH 03824
603-862-2210

**DEPARTMENT OR PROGRAM**: Department of Botany and Plant Pathology (10 faculty)
Contact: Dr. S. C. Minocha
Telephone: 603-862-2060
Other Programs Offering Graduate Education in Ecology: Department of Zoology (15 faculty), contact Dr. Peter Sale, 603-862-2100; Department of Forest Resources (17 faculty), contact Dr. Harold Hocker, 603-862-1020.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 1 | 20 |
| Ph.D. | 16 | NO | YES | YES | YES | YES | 2 | 20 |

Other: For the Ph.D., one course in statistics.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 2 | 2 | 2 | 14 | 5 |
| Ph.D. | 3 | 2 | 4 | 4 | 10 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 10 | | 20 | | 50 |
| Ph.D. | 20 | 20 | 20 | | 40 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine and freshwater ecology; terrestrial and aquatic population and community ecology; forest ecology; plant ecology.

Formal Teaching/Research Arrangements With Other Institutions: Teaching relationship with Shoals Marine Lab; research relationship with Jackson Estuarine Lab.

Specialized Facilities: Grinnell Biology Library; Hodgdon Herbarium; research greenhouses; 3 natural areas; extensive tracts of forest and meadow; Shoals Marine Lab; Jackson Estuarine Lab.

**UNIVERSITY OF NEW MEXICO**
Admissions Office, Student Services Center
Albuquerque, NM 87131
505-277-2446

**DEPARTMENT OR PROGRAM:** Biology (31 faculty)
Contact: Donald W. Duszynski
Telephone: 505-277-3411

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.20
GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Other: The equivalent of a BS in biology, including one year of physics, organic chemistry, and at least one course in ecology or evolution.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 18 | YES | NO | YES | YES | YES | 0 | 0 |

Other: Minumum teaching requirement is 6 formal lectures in a real course. Also, a "tool" course (statistics, fortran, etc.) is required. For the PhD, courses in population biology and genetics, behavior and physiological ecology, and communities and ecosystems are required.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 15 | 2 | 2 | 2 | 20 | 3 |
| Ph.D. | 24 | 8 | 4 | 5 | 40 | 5 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological ecology, community and ecosystems ecology, landscape ecology, behavioral ecology.

Formal Teaching/Research Arrangements With Other Institutions: Faculty members at other institutions may serve as adjunct professors thereby lending their expertise to our programs. Formal teaching and research arrangements exist with Los Alamos Scientific Lab, Los Alamos, New Mexico.

Specialized Facilities: Specialized buildings, libraries, herbaria, greenhouses, field stations, field vehicles, field equipment, computers (both PC and mainframe). The campus is only 1/2 - 1 hr away from habitats ranging from desert to alpine tundra.

**UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL**
The Graduate School, 200 Bynum Hall 008A
Chapel Hill, NC 27514
919-966-2611

**DEPARTMENT OR PROGRAM**: Dept. of Biology/Ecology (8 faculty)
Contact: Dr. Seth Reice
Telephone: 919-962-1270
Other Programs Offering Graduate Education in Ecology: Marine Science Curriculum (5 faculty), contact Dirk Frankenberg, 919-962-1252.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 75th percentile on both verb. & quant. tests

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | YES | YES | 1 | 6 |
| Ph.D. | 0 | NO | YES | NO | YES | YES | 1 | 6 |

Other: MA requires a thesis and defense; MS requires only 3 hours of research and a library report.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 1 | 2 | 2 | 2 | 1 |
| Ph.D. | 2 | 2 | 4 | 5 | 10 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 10 | 5 | 20 | | 45 |
| Ph.D. | 10 | 10 | 75 | | | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Broad strength in ecology; particular emphasis on experimental analysis of populations and communities. Interdisciplinary studies including a broad range of social, physical, and biological studies.

Formal Teaching/Research Arrangements With Other Institutions: Students may take courses at Duke University or North Carolina State University for degree credit; member of Organization for Tropical Studies.

Specialized Facilities: Highlands Biological Station (southern Appalachians); Institute of Marine Sciences (on ocean); botanical garden; behavioral research station; extensive natural areas; 600,000-specimen herbarium; 3 electron microscopes; controlled environment rooms, etc.

**UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL**
The Graduate School
Chapel Hill, NC 27514

**DEPARTMENT OR PROGRAM:** Environmental Sciences and Engineering/Environmental Chemistry and Biology Program (9 faculty)
Contact: Frederick Pfaender
Telephone: 919-966-3842

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Other: 1 yr each of physics and calculus; 3 letters of reference; statement of interest; for the PhD, acceptance by specific faculty member.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 0 | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 15 | 3 | 3 | 24 | 8 |
| Ph.D. | 1 | 6 | 4 | 4 | 8 | 2 |

Other: These figures are for the department as a whole; only about 20-25% of these students are ecologists.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 50 | 10 | 20 | | 10 |
| Ph.D. | 20 | 30 | 30 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Water quality; microbial and phytoplankton nutrition; organic matter degradation; elemental cycling; primary productivity. Emphasis on lakes, rivers, estuaries, wetlands (salt marshes and freshwater swamps).

Specialized Facilities: Excellent libraries; use of UNC Institute of Marine Sciences field station; boats and motors; excellent mainframe computing; limnology lab specializing in water quality (chemical & biological) studies.

**UNIVERSITY OF NORTH CAROLINA, WILMINGTON**
College Road
Wilmington, NC 28403
919-395-3243

**DEPARTMENT OR PROGRAM**: Biological Sciences (27 faculty)
Contact: Dr. James Merritt
Telephone: 919-395-3471

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: Verb. 500, Quant. 500
Other: Advanced Biology GRE test required; no minimum score.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | YES | YES | YES | 1 | 15 |

Other: Additional coursework requirements established by committee.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 3 | 3 | 35 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 21 | 21 | | 42 | 14 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: There are 3 options for a marine biology degree: coastal biology (essentially an ecology degree with coastal emphasis), marine biology (marine science stressing ecology), biological oceanography (classical marine biological training).

Specialized Facilities: Diving vessel Seahawk sponsored by NOAA; Institute for Marine Biomedical Research; greenhouse; 8 small vessels for marsh and shallow water work.

**UNIVERSITY OF NORTH DAKOTA**
The Graduate School
Grand Forks, ND 58202
701-777-2784

**DEPARTMENT OR PROGRAM:** Biology (16 faculty)
Contact: Dr. Paul Kannowski
Telephone: 701-777-2623

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.75

GRE Required: YES
Minimum GRE Scores Required: 50th percentile on all tests for PhD candidates

Other: Upper division courses in ecology, genetics, physiology, morphology, and systematics; math or statistics (2 courses); physics; organic chemistry or biochemistry (2 courses).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 90 | NO | YES | YES | YES | YES | 0 | 0 |

Other: Thesis and nonthesis options are available for the MS; seminars.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 3 | 20 | 7 |
| Ph.D. | | | 3 | 4 | 10 | 3 |

Other: There are 15 teaching and 3 research assistantships for MS and PhD students combined.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 15 | 5 | 40 | | 30 |
| Ph.D. | 10 | 10 | 40 | | 30 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population biology (animal & plant), plant-animal interactions, quantitative skills, biogeography, waterfowl ecology, community ecology.

Formal Teaching/Research Arrangements With Other Institutions: Research arrangements with Lake Itasca Biological Station (U. of MN), Northern Prairie Wildlife Research Center (Jamestown, ND), Delta Waterfowl Research Station (Delta, Manitoba).

Specialized Facilities: Greenhouses; environmental chambers; animal rooms for terrestrial and aquatic organisms; vertebrate and invertebrate museums; herbarium; darkroom; sound and soil analysis rooms; field stations at prairie, lake, floodplain, forest and old field sites; good computing facilities.

**UNIVERSITY OF NOTRE DAME**
Department of Biological Sciences
Notre Dame, IN 46556
219-239-6552

**DEPARTMENT OR PROGRAM**: Biology Dept./Ecology Program (5 faculty)
Contact: Stephen Carpenter
Telephone: 219-239-5544

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: NO

Other: Chemistry (4 sem. including organic chem.); physics (2 sem.); mathematics (2 sem. including calculus).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 72 | NO | YES | YES | YES | YES | 4 | 18 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | | | 3 |
| Ph.D. | 2 | 2 | 4 | 5 | 9 | 2 |

Other: These figures are for ecology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | No information available. | | | | | |
| Ph.D. | 10 | | 80 | | | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, especially phytoplankton ecology (including phytoplankton-zooplankton interactions); littoral ecology (macrophytes, snails, crayfish); stream benthic ecology. Strong allied program in biocomputing.

Formal Teaching/Research Arrangements With Other Institutions: Graduate students participate in collaborative research projects with other institutions, including Univ. Wisconsin-Madison, Univ. Minnesota, Ohio State, Univ. Oklahoma.

Specialized Facilities: Field station with privately-owned experimental lakes and well-equipped laboratory and housing; excellent computing facilities (IBM 370 mainframe, numerous Apple and IBM micros); complete journal collection in biology research library; greenhouse.

**UNIVERSITY OF OKLAHOMA**
Admissions and Records, Buchanon Hall
Norman, OK 73019
405-325-2251

**DEPARTMENT OR PROGRAM:** Department of Botany (20 faculty)
Contact: Dr. Leonard Beevers
Telephone: 405-325-4321

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 20 |
| Ph.D. | 90 | YES | YES | NO | YES | YES | 1 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 0 | 2 | 2 | 9 | 3 |
| Ph.D. | 8 | 2 | 4 | 4 | 9 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | | | 100 | | |
| Ph.D. | 10 | 25 | 25 | | 15 | 25 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant physiological ecology; plant community ecology; ecology of North American grasslands; plant-animal interactions in grasslands; aquatic ecology.

Formal Teaching/Research Arrangements With Other Institutions: Informal arrangments with Wichita Mountains Wildlife Refuge; USDA range research labs in El Reno and Woodward; Kansas State Univ. Konza Prairie; Colorado State University; Oak Ridge Associated Universities.

Specialized Facilities: Research greenhouse, University of Oklahoma Biological Station on Lake Texoma (specializes in aquatic ecology); Bebb Herbarium (200,000 specimens) of Great Plains flora; VAX, IBM 3081 mainframes with SAS, BMDP, NTSYS, SPSS, Cornell Ecology Programs.

**UNIVERSITY OF OKLAHOMA**
Buchanan Hall 127
Norman, OK 73019
405-325-2251

**DEPARTMENT OR PROGRAM**: Zoology (21 faculty)
Contact: James N. Thompson, Jr.
Telephone: 405-325-4821

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 60th percentile

Other: 24 hours in biology; calculus, organic chemistry, physics (2), foreign language.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | YES | YES | YES | 0 | 0 |
| Ph.D. | 90 | YES | YES | YES | YES | YES | 2 | 20 |

Other: Residence requirement for MS, 22 hrs cr. @ OU, 16 of which are regularly scheduled classes. For PhD, minimum of 30 hrs. course work.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 3 | 3 | 18 | 5 |
| Ph.D. | | | 5 | 5 | 32 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 20 | | 60 | | 10 |
| Ph.D. | | 25 | 50 | | 25 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Predator-prey dynamics; population ecology; aquatic ecology of streams, lakes, and reservoirs; behavioral ecology of vertebrates and invertebrates; physiological ecology of thermal adaptations, respiratory gas exchange, and water balance.
Formal Teaching/Research Arrangements With Other Institutions: Research assistantships through the University's biological station, Stoval Museum, Biological Survey, and the state's fisheries and wildlife conservation department; summer teaching assistantships at the Biological Station.
Specialized Facilities: S.R. Noble Electron Microscopy Lab; the Univ. of Okla. Biological Station on Lake Texoma; aquatic ecology and fisheries center at Noble; animal behavior lab; insectary on campus; Oliver Sildlife Sanctuary; Lake Thunderbird (through Okla. Biological Survey).

**UNIVERSITY OF OREGON**
Oregon Hall
Eugene, OR 97403
503-686-3201

**DEPARTMENT OR PROGRAM:** Biology (40 faculty)
Contact: Roderik Capaldi
Telephone: 503-686-4502

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00 in science courses

GRE Required: YES
Minimum GRE Scores Required: YES

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | | NO | NO | | YES | 0 | 0 |
| Ph.D. | | NO | YES | | YES | YES | 3 | 15 |

Other: Residence requirements for both MS & Ph.D.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | | 5 | 5 | 10 | 4 |
| Ph.D. | 2 | 2 | 5 | 5 | 6 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | No information available. | | | | | |
| Ph.D. | 20 | 20 | 40 | | 20 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population biology, plant paleoecology, marine ecology.

Specialized Facilities: Marine station (Oregon Institute of Marine Biology at Charleston, Oregon) is part of our department.

**UNIVERSITY OF OTTAWA**
Department of Biology
Ottawa, Ontario Canada K1N 6N5
613-231-2336

**DEPARTMENT OR PROGRAM**: Biology (20 faculty)
Contact: Dr. J. McNeill
Telephone: 613-231-2336

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO GRE Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | NO | NO | YES | YES | | |
| Ph.D. | | YES | YES | YES | YES | YES | | |

Other: The MS requires 2 terms of full-time study and 1 public seminar; the Ph.D. requires 4 terms of full-time study and 2 public seminars.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 3 | 3 | 36 | 35 |
| Ph.D. | | | 3 | 4 | 24 | 25 |

Other: These figures are for the Biology Department as a whole; there are about 11 MS students and 6 PhD students in ecology.

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Community ecology of algae, bacteria and wetland plants; fish ecology; chemical ecology of herbivore-plant interactions; behavioral ecology of birds.

Formal Teaching/Research Arrangements With Other Institutions: Univ. of Ottawa and Carleton Univ. form the Ottawa-Carleton Centre for Graduate Studies and Research in Biology. Students have professors from both Departments, receive degrees from university of their advisor. There are also 15 adjunct professors, mostly from govenment labs, who supervise graduate research and participate in courses.

Specialized Facilities: Computing facilities, including several terminals linked to an AMDAHL V8 computer and three microcomputers; well equipped laboratories for biochemical work; growth chambers for plant and insect rearing; herbarium; sonagraph for analysis of bird songs; animal care facility; proximity to unspoiled natural areas.

**UNIVERSITY OF PENNSYLVANIA**
Department of Biology
Philadelphia, PA 19104
215-898-6786

**DEPARTMENT OR PROGRAM:** Biology Dept./Ecology Program (6 faculty)
Contact: Dr. John Cebra
Telephone: 215-898-7521

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: Verb. 600, Quant. 600

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | | NO | YES | NO | YES | NO | 2 | 15 |

Other: Departmental preliminary exam in general area of ecology; thesis proposal defense.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 10 | 0 | 5 | 5 | 15 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | | | 70 | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology and evolutionary biology, especially in preparation for faculty positions.

**UNIVERSITY OF RHODE ISLAND**
Graduate School, Green Hall
Kingston, RI 02881
401-792-2872

**DEPARTMENT OR PROGRAM**: Natural Resources Science (9 faculty)
Contact: Dr. William R. Wright
Telephone: 401-792-2904

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: NO
Other: BS in biological or physical science; a GPA of 3.0 and GRE scores of 500 or better are preferred.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 9 | 3 | 3 | 15 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 25 | 45 | | 5 | 25 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Forest ecology; wildlife management; wetland ecology; water resources management; nonpoint source pollution; forest productivity; soil-site relationships; endangered species research.

Formal Teaching/Research Arrangements With Other Institutions: Arrangements with R.I. Dept. of Environmental Management, U.S. Soil Conservation Service, Center for Field Research (Earthwatch), Belmont, MA.

Specialized Facilities: Research area in West Greenwich, R.I. with 2000 acres of wildland for ecological research; Environmental Data Center with computer hardware and software to support computer mapping; analytical equipment including atomic absorption spectrophotometer, gas chromatograph, Troxler neutron soil moisture meter - depth probe and a Troxler surface moisture density probe.

**UNIVERSITY OF RHODE ISLAND**
Graduate Admissions Office, Green Hall
Kingston, RI 02881
401-792-2872

**DEPARTMENT OR PROGRAM:** Zoology (15 faculty)
Contact: J. Stanley Cobbe, Jr.
Telephone: 401-792-2372
Other Programs Offering Graduate Education in Ecology: Botany (9 faculty), contact Robert Sheath, 401-792-2161.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO
Other: Sound undergraduate training in basic biology, ecology, evolution, organic chemistry, calculus, statistics, physics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 2 | 10 |
| Ph.D. | 72 | NO | YES | YES | YES | YES | 5 | 10 |

Other: For the Ph.D., 2 modern foreign languages, though one may be replaced by a "research tool" (e.g. advanced statistics, etc.).

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 1 | 3 | 3 | 10 | 5 |
| Ph.D. | 18 | 1 | 5 | 6 | 20 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | | | 70 | | 30 |
| Ph.D. | | 10 | 50 | | 35 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Quantitative ecology; behavior; natural history; evolution with strong population genetics emphasis; marine and freshwater emphasis.

Formal Teaching/Research Arrangements With Other Institutions: Graduate School of Oceanography, URI; informal relationship with EPA, National Marine Fisheries Service, Woods Hole Oceanographic Institute, National Bureau of Fisheries, State of R.I.

Specialized Facilities: Research-dedicated 1000-acre preserve at Alton Jones Campus, U.R.I. kept in perpetuity in natural state; boats; strong computer facilities; freshwater and seawater aquarium rooms; well equipped laboratories.

**UNIVERSITY OF ROCHESTER**
Department of Biology
Rochester, NY 14627
716-275-3837

**DEPARTMENT OR PROGRAM**: Biology (21 faculty)
Contact: Dr. Martin Gorovsky
Telephone: 716-275-3837

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | 90 | NO | YES | NO | YES | YES | 2 | 10 |

Other: The PhD program includes a laboratory rotation.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | | | 5 | 5 | 20 | 4 |

Other: Approximately 50% of students are supported on teaching assistantships and 50% on research assistantships or fellowships.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 10 | | 50 | 40 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecological genetics, evolutionary biology, behavioral ecology.

**UNIVERSITY OF SOUTH CAROLINA**
Graduate School
Columbia, SC 29208
803-777-4243

**DEPARTMENT OR PROGRAM:** Biology Department (36 faculty)
Contact: Prof. L. T. Wimer
Telephone: 803-777-4141

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 50th percentile required on both verb. and quant. tests.

Other: A score in the 50th percentile or better is also required on the advanced biology GRE test.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | NO | YES | YES | YES | 1 | 4 |
| Ph.D. | | YES | YES | YES | YES | YES | 2 | 4 |

Other: A final seminar on the PhD dissertation; language requirement may be waived by the student's advisory committee.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 16 | 6 | 2 | 2 | 32 | 8 |
| Ph.D. | 19 | 19 | 4 | 5 | 48 | 6 |

Other: Data covers all of the Biology Department, not just ecology graduate students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 8 | | 8 | 67 | | 17 |
| Ph.D. | | 10 | 60 | | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine benthic ecology, particularly experimental manipulative ecology.
Formal Teaching/Research Arrangements With Other Institutions: The University of South Carolina system and the James M. Waddell Mariculture Center, Beaufort, SC.
Specialized Facilities: Baruch estuarine field lab; seawater and mariculture facilities; temperature controlled rooms; TEM and SEM facility; image analysis systems; gas chromatography and mass spectrometers; extensive mainframe and microcomputers; electronics technician; micromanipulator facility; wood and metal workshops; oligonucleotide sequencing facility.

**UNIVERSITY OF SOUTH FLORIDA**
Department of Biology
Tampa, FL 33620
813-974-3250

**DEPARTMENT OR PROGRAM**: Biology Dept./Ecology Program (14 faculty)
Contact: Dr. Clinton Dawes
Telephone: 813-974-3250

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. + quant. combined for MS, 1100 for PhD

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | YES | NO | 0 | 0 |
| Ph.D. | 20 | NO | YES | YES | YES | YES | 0 | 0 |

Other: PhD departmental seminar.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 18 | 10 | 2 | 3 | 61 | 12 |
| Ph.D. | 10 | 5 | 3 | 5 | 17 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 5 | 5 | 14 | 10 | | 66 |
| Ph.D. | 17 | 8 | 5 | | 20 | 50 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological ecology (marine), community ecology, plant-animal interactions, biogeography.

Formal Teaching/Research Arrangements With Other Institutions: Member Highlands Biological Station; individual faculty members have ties with other biological research stations and with institutions in the Caribbean and South America.

Specialized Facilities: 1-million-volume library; largest herbarium in Florida; botanical garden with greenhouse; field sites adjacent to campus, on Tampa Bay, at Fort Myers, in Taylor Co., and in the Florida Keys (research facilities); regional computing center.

**UNIVERSITY OF SOUTHERN MISSISSIPPI**
The Graduate School
Hattiesburg, MS 39406
601-266-4369

**DEPARTMENT OR PROGRAM**: Biological Sciences (22 faculty)
Contact: Dr. B. J. Martin
Telephone: 601-266-4748

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Other: A GPA of 3.5 is required for the PhD.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 20 |
| Ph.D. | 48 | YES | YES | YES | YES | YES | 0 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 14 | 3 | 3 | 3 | 22 | 7 |
| Ph.D. | 8 | 3 | 4 | 4 | 12 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 18 | 36 | 9 | 18 | | 18 |
| Ph.D. | 13 | 7 | 60 | | 7 | 13 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Freshwater and marine ecology; behavioral ecology.

Formal Teaching/Research Arrangements With Other Institutions: Affiliated with Gulf Coast Research Laboratory, Ocean Springs, MS.

Specialized Facilities: Greenhouses; herbarium; fish, reptile and invertebrate museums; 100-acre field lab and aviary near campus; DeSoto National Forest; Ragland Hills Reserve; boats; TEM & SEM; reseach facilities on Gulf of Mexico (Long Beach, MS); tissue culture and small animal facilities; free access to mainframes, easy access to PCs.

**UNIVERSITY OF SOUTHWESTERN LOUISIANA**
Graduate School
Lafayette, LA 70504
318-231-6965

**DEPARTMENT OR PROGRAM**: Biology (22 faculty)
Contact: Dr. Robert Jaeger
Telephone: 318-231-5235

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: Verb. 600, Quant. 600

Other: Organic chemistry (2 sem), physics (2 sem), mathematic (2 sem); the required scores mentioned above are for PhD candidates; for entry into the MS program, a GPA of 2.75 and GRE scores of 500 or better are required.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | YES | YES | 1 | 10 |
| Ph.D. | 72 | NO | YES | YES | YES | YES | 0 | 0 |

Other: Defense of thesis proposal; for the PhD, a manuscript must be submitted for publication.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 8 | 0 | 2 | 2 | 14 | 5 |
| Ph.D. | 6 | 3 | 4 | 4 | 9 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 30 | 20 | 20 | 30 | | |
| Ph.D. | | | | | 100 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioral ecology; evolutionary ecology.

Formal Teaching/Research Arrangements With Other Institutions: Summer courses and research facilities at Louisiana Universities Marine Consortium.

Specialized Facilities: Herbarium; greenhouse; four field stations; in-house computer terminals linked to main-frame; zoological collections; electron microscopy center; four controlled environment rooms.

**UNIVERSITY OF TENNESSEE**
Office of Graduate Adm. & Records, 218 Student Service
Knoxville, TN 37996
615-974-3251

**DEPARTMENT OR PROGRAM:** Graduate Program in Ecology (25 faculty)
Contact: Dewey L. Bunting
Telephone: 615-974-3065

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Calculus, upper division course in ecology, organic chemistry.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | | YES | NO | YES | YES | YES | 0 | 0 |

Other: There is a course distribution requirement and an oral exam for the MS. The PhD requires presentation of a public seminar.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 3 | 3 | 24 | 10 |
| Ph.D. | | | 4 | 4 | 30 | 13 |

Other: Assistantships are available from a variety of sources.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 8 | 32 | | 36 | | 24 |
| Ph.D. | 15 | 38 | 30 | | 8 | 9 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Applied ecology including resource management; paleoecology; community ecology; environmental toxicology; theoretical, mathematical, and systems ecology; microbial ecology; aquatic ecology.

Formal Teaching/Research Arrangements With Other Institutions: Cooperative agreement with Environmental Sciences Division of Oak Ridge National Laboratory (including 13 positions for graduate research assistants). Cooperative Park Service Unit with the National Park Service, Great Smoky Mountains National Park.

Specialized Facilities: Tech Aqua Field Station; Highlands Biological Station; Oak Ridge National Lab research facilities; students also use national laboratories throughout the U.S., Central and South America; SEM; facilities for elemental and atomic analysis of gas/liquid/solid samples.

**UNIVERSITY OF TEXAS, AUSTIN**
MAI 7
Austin, TX 78713
512-471-1711

**DEPARTMENT OR PROGRAM**: Division of Biological Sciences
Contact: Dr. T. Delevoryas
Telephone: 512-471-4882

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1000 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | NO | 0 | 20 |
| Ph.D. | | NO | YES | YES | YES | YES | 0 | 20 |

Other: For PhD students, the GRE advanced biology test is required.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 0 | 2 | 3 | 6 | 3 |
| Ph.D. | 3 | 1 | 4 | 5 | 5 | 1 |

Other: The figures relate to ecology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 10 | | 40 | | 30 |
| Ph.D. | 30 | | 10 | | 50 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population and community ecology; evolutionary ecology; tropical ecology; plant-animal interactions.

Specialized Facilities: Large science library; good greenhouses & growth chamber facilities; Brackenridge Field Lab; Marine Science Institute, Port Aransas; large herbarium (Latin American focus); Texas Memorial Museum & collections; CDC 170/750, IBM 3081, VAX 11/780 cluster; Cray X-MP/24.

**UNIVERSITY OF TEXAS, AUSTIN**
MA1 7
Austin, TX 78713
512-471-1711

**DEPARTMENT OR PROGRAM:** Botany (20 faculty)
Contact: Dr. S. Roux
Telephone: 512-471-5858

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 1000 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | NO | 0 | 20 |
| Ph.D. | | YES | YES | NO | YES | YES | 0 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 2 | 2 | 3 | 3 | 1 |
| Ph.D. | 25 | 4 | 4 | 5 | 8 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 50 | 25 | | | | 25 |
| Ph.D. | 25 | | 25 | | 50 | |

**STRENGTHS AND SPECIALTIES**

Specialized Facilities: Large science library; good greenhouses & growth chamber facilities; Brackenridge Field Lab; Marine Science Institute, Port Aransas; large herbarium (Latin American focus); Texas Memorial Museum & collections; CDC 170/750, IBM 3081, VAX 11/780 cluster; Cray X-MP/24.

**UNIVERSITY OF TEXAS, AUSTIN**
MAI 7
Austin, TX 78713
512-471-1711

**DEPARTMENT OR PROGRAM**: Zoology (41 faculty)
Contact: Dr. C. Hubbs
Telephone: 512-471-7131

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 20 |
| Ph.D. | | NO | YES | YES | YES | YES | 2 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 1 | 2 | 3 | 6 | 2 |
| Ph.D. | 25 | 5 | 4 | 6 | 30 | 5 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Specialized Facilities: Large science library; good greenhouses & growth chamber facilities; Brackenridge Field Lab; Marine Science Institute, Port Aransas; large herbarium (Latin American focus); Texas Memorial Museum & collections; CDC 170/750, IBM 3081, VAX 11/780 cluster; Cray X-MP/24.

**UNIVERSITY OF TEXAS, DALLAS**
Box 830688, MC 1.1
Richardson, TX 75083
214-690-2341

**DEPARTMENT OR PROGRAM:** Environmental Sciences (12 faculty)
Contact: Dr. William G. Cale
Telephone: 214-690-2970

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO

GRE Required: YES
Minimum GRE Scores Required: Verb. 400, Quant. 500

Other: Minimum combined GRE is 1000; a B average in the student's major field.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 36 | YES | NO | NO | YES | NO | 0 | 20 |
| Ph.D. | 90 | YES | YES | NO | YES | YES | 0 | 20 |

Other: Teaching is not a degree requirement; those on teaching assistantships are half-time employees.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 4 | 2 | 2 | 13 | 4 |
| Ph.D. | 4 | 2 | 4 | 5 | 8 | 2 |

Other: Program has about 100 full- and part-time students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 40 | 50 | | 10 | | |
| Ph.D. | 45 | 50 | 5 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Environmental modeling; aquatic biology and chemistry; microbial ecology.

Specialized Facilities: IBM 4341 mainframes; mass spectrometers; boats; routine aquatic collection devices; air pollution sampling equipment; culturing and incubation facilities for micro and macro organisms; good analytic instrumentation.

**UNIVERSITY OF TEXAS, EL PASO**
The Graduate School, 901 Education Bldg.
El Paso, TX 79968
915-747-5491

**DEPARTMENT OR PROGRAM**: Biological Sciences (18 faculty)
Contact: Dr. A. G. Canaris
Telephone: 915-747-5446

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.00

GRE Required: YES
Minimum GRE Scores Required: 1000 verb. + (quant. or analytic) combined.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 16 | 0 | 2 | 2 | 35 | 8 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology of parasites; desert ecology; community ecology; physiological ecology.

Specialized Facilities: 60,000-square foot Biological Science Building; main university library; herbarium; greenhouse; university computer center with MUSIC terminals; IBM PC's in Dept. Biological Science; collections of vertebrates and fossils in the Laboratory for Environmental Biology.

**UNIVERSITY OF TOLEDO**
Graduate School, Biology Department
Toledo, OH 43606
419-537-2669

**DEPARTMENT OR PROGRAM:** Biology (17 faculty)
Contact: Dr. Woon Jyung
Telephone: 419-537-2065

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: NO
Other: BS in biology (30 hrs biology), chemistry through organic, calculus (2 sem), physics (2 sem).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | | YES | 1 | 20 |
| Ph.D. | 90 | YES | YES | YES | YES | YES | 1 | 20 |

Other: Thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | | 3 | 3 | 5 | 2 |
| Ph.D. | 2 | 1 | 5 | 5 | 4 | 1 |

Other: These figures refer only to ecology students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 30 | | 60 | | |
| Ph.D. | | 5 | 15 | | 80 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Limnology, plant ecology, avian ecology, avian & mammalian physiological ecology.

Formal Teaching/Research Arrangements With Other Institutions: Co-op with Bowling Green State Univ., Bowling Green, Ohio.

Specialized Facilities: Arboretum; proximity & access to Lake Erie; Apple computers & terminals to main frame.

**UNIVERSITY OF UTAH**
Department of Biology, 201 S. Biology
Salt Lake City, UT 84112
801-581-5636

**DEPARTMENT OR PROGRAM**: Biology/Ecology & Evolution (22 faculty)

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | NO | YES | YES | 3 | |
| Ph.D. | | YES | YES | NO | YES | YES | 0 | |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 1 | 2 | 2 | 8 | 3 |
| Ph.D. | 12 | 6 | 5 | 5 | 16 | 4 |

Other: Guaranteed stipend and tuition waiver with very low teaching requirements (approx. 1 quarter/yr.).

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 5 | 5 | 30 | | 35 |
| Ph.D. | | | 60 | | 40 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Theoretical, evolutionary, behavioral, physiological, and community ecology; desert, aquatic, and tropical ecology; plant/herbivore and pollination ecology; biogeography, systematics, and sociobiology; functional morphology and biomechanics.

Formal Teaching/Research Arrangements With Other Institutions: Organization for Tropical Studies.

Specialized Facilities: Great Basin desert to alpine ecosystems nearby: Red Butte Canyon National Research Area (over 7,000 acres adjacent to campus); herbarium; greenhouses; experimental research gardens; stable isotope ratio mass spectrometer facility; electron microscopes.

**UNIVERSITY OF VERMONT**
335 Watermon Building
Burlington, VT 05405
802-656-2699

**DEPARTMENT OR PROGRAM:** Wildlife & Fisheries Biology (4 faculty)
Contact: Dr. David H. Hirth
Telephone: 802-656-2684

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S | 24 | NO | YES | NO | YES | YES | 1 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 4 | 2 | 2 | 6 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | | 75 | | 25 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Behavioral ecology of birds and large mammals; multivariate analysis of wildlife habitat; ecology and population analysis of cold-water fishes.

Specialized Facilities: Geographic Information System (GIS) with VAX 11-750 computer.

**UNIVERSITY OF VERMONT**
Graduate Admissions, Waterman Bldg
Burlington, VT 05405
802-656-2699

**DEPARTMENT OR PROGRAM**: Zoology (15 faculty)
Contact: Dr. George Happ
Telephone: 802-656-2922

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | YES | YES | 1 | 20 |
| Ph.D. | 75 | NO | YES | YES | YES | YES | 1 | 20 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 1 | 3 | 3 | 10 | 2 |
| Ph.D. | 2 | 1 | 7 | 7 | 2 | 1 |

Other: These figures are for ecology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 30 | | 30 | | 20 |
| Ph.D. | Nc recent graduates. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Evolutionary ecology, physiological ecology, behavior, limnology.

Specialized Facilities: Large herbarium of New England and tropical American plants; insect, bird & mammal collections; free use of main-frame and micro computers; environmental chambers; large greenhouses; animal rooms; light and electron microscopes.

**UNIVERSITY OF VICTORIA**
Faculty of Graduate Studies
Victoria, British Columbia, Canada V8W 2Y2
604-721-7976

**DEPARTMENT OR PROGRAM:** Biology (21 faculty)
Contact: Dr. John E. McInerney
Telephone: 604-721-7091

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.40 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 7 |
| Ph.D. | 45 | YES | YES | YES | YES | YES | 0 | 7 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 22 | 2 | 2 | 3 | 30 | 3 |
| Ph.D. | 4 | 5 | 3 | 5 | 7 | 1 |

Other: These figures are for ecology students only. Student support may be available for longer than 2 or 3 years, but is not guaranteed.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 50 | 10 | 10 | | 10 |
| Ph.D. | 25 | 25 | | | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Marine invertebrate ecology; population ecology.

Formal Teaching/Research Arrangements With Other Institutions: Both course work and research facilities are offered at the Bamfield Marine Station, located on the west coast of Vancouver Island and operated by a consortium of five western Canadian universities.

Specialized Facilities: Herbarium, greenhouses, animal care facility, closed-circuit seawater system, marine research vessel.

**UNIVERSITY OF VIRGINIA**
Graduate School, Carell Hall
Charlottesville, VA 22901

**DEPARTMENT OR PROGRAM**: Environmental Sciences (27 faculty)
Contact: William Odum
Telephone: 804-924-0560

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | YES | YES | NO | YES | NO | 0 | 0 |
| Ph.D. | 48 | YES | YES | NO | YES | NO | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 3 | 50 | 15 |
| Ph.D. | | | 2 | 5 | 20 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 40 | 20 | | 30 | | 10 |
| Ph.D. | 25 | 25 | 20 | | 20 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Interrelations between physical and biological processes (numerous courses in hydrology, geology and meteorology); climatology in addition to ecology.

Specialized Facilities: Greenhouses, 6 permanent field sites, field station, extensive library.

**UNIVERSITY OF WASHINGTON**
Graduate School, 201 Administration
Seattle, WA 98195
206-543-5900

**DEPARTMENT OR PROGRAM**: Botany (16 faculty)
Contact: Melinda Denton
Telephone: 206-543-1942
Other Programs Offering Graduate Education in Ecology: Forest Resources (32 faculty), contact Robert Lee, 206-543-6210.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.40
GRE Required: YES
Minimum GRE Scores Required: 650 Verb, 650 Quant.
Other: BS in botany, or equivalent.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | NO | NO | NO | YES | YES | 1 | 20 |
| Ph.D. | 45 | NO | YES | NO | YES | YES | 1 | 20 |

Other: Ph.D. requires 1 or 2 minor areas.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 3 | 2 | 3 | 3 | 2 |
| Ph.D. | 3 | 6 | 4 | 4 | 11 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 40 | | 20 | | 30 |
| Ph.D. | | 40 | | | 40 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Paleobotany, ecophysiology, community and ecosystems analysis, marine ecology.

Formal Teaching/Research Arrangements With Other Institutions: Cooperative research is conducted with researchers at Oregon State University.

Specialized Facilities: Largest herbarium in NW, greenhouse, plant growth chambers, computers, environmental instrumentation, ecophysiology equipment, scanning electron microscope, computers in laboratories.

**UNIVERSITY OF WASHINGTON**
Department of Zoology
Seattle, WA 98195
206-543-1620

**DEPARTMENT OR PROGRAM**: Zoology (25 faculty)
Contact: Charles Laird
Telephone: 206-543-1620

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: General background in biology including cell biology, development, genetics, ecology, and physiology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 18 | YES | YES | NO | YES | YES | 3 | 20 |
| Ph.D. | 36 | YES | YES | NO | YES | YES | 3 | 20 |

Other: Field station experience.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 1 | 1 | 3 | 3 | 1 | 1 |
| Ph.D. | 21 | 12 | 6 | 6 | 60 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | No information available. | | | | | |
| Ph.D. | | | 40 | | 60 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: From the general survey of University of Washington graduates we know only that all departmental courses are rated from very good to excellent.

Formal Teaching/Research Arrangements With Other Institutions: Friday Harbor Laboratories are available for research on marine organisms. The U. of Washington is affiliated with the Organization for Tropical Studies.

Specialized Facilities: University library; health sciences library; herbarium; botany greenhouse and drug plant garden; Friday Harbor Laboratories, San Juan Island; electron microscopes; departmental mini- and micro-computers with peripherals for graphics and letter quality printing.

**UNIVERSITY OF WATERLOO**
Department of Biology
Waterloo, Ontario, Canada N2L 3G1
519-885-1211

**DEPARTMENT OR PROGRAM**: Dept. of Biology (30 faculty)
Contact: Dr. J. E. Thompson
Telephone: 519-885-1211

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | NO | NO | YES | NO | 4 | 10 |
| Ph.D. | | YES | YES | NO | YES | NO | 6 | 10 |

Other: Graduate seminar.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 53 | 8 |
| Ph.D. | | | 3 | 4 | 40 | 9 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Fisheries biology; freshwater biology; ground-water and soil microbiology; environmental toxicology; insect population ecology; decomposition of debris by fungi; phytogeography and cytotaxonomy of selected Compositae; phycology.

Formal Teaching/Research Arrangements With Other Institutions: An expert in wildlife management (wolves, coyotes, foxes, grouse) who is a member of the School of Urban and Regional Planning, Faculty of Environmental Studies, holds a joint appointment in Biology.

Specialized Facilities: Two biology buildings; science library; 2 greenhouses & growth chambers; herbarium; nearby Biology Reserve; mainframe computers IBM-based, DEC/VAX networks, IBM PC network for teaching; departmental vehicles (van, pick-up, passenger) for field trips.

**UNIVERSITY OF WESTERN ONTARIO**
London, Ontario, Canada N6A 5B7

**DEPARTMENT OR PROGRAM**: Zoology (21 faculty)
Contact: D. M. Ogilvie
Telephone: 519-661-3151
Other Programs Offering Graduate Education in Ecology: Plant Sciences (19 faculty), contact A. W. Day, 519-661-3102.

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.80

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | NO | YES | YES | NO | 1 | 10 |
| Ph.D. | | YES | YES | YES | YES | NO | 1 | 10 |

Other: Student presents seminar on his/her research.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 9 | 7 | 2 | 2 | 11 | 5 |
| Ph.D. | 5 | 3 | 4 | 4 | 8 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 30 | 25 | | 33 | | 12 |
| Ph.D. | | 20 | 20 | | 40 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Life history ecology, avian energetics, benthic communities, ecomorphology, small mammals, waterfowl, biometry, fish ethology.

Formal Teaching/Research Arrangements With Other Institutions: Contributor to Ontario Universities Program in Field Biology (a series of field courses).

Specialized Facilities: Aviaries; aquaria; 160 acre woodlot/old field "station"; University computers (IBM, CYBER, DEC 10); museum; herbarium; greenhouses; comprehensive library; 40-acre plant sciences field station (15 acres available); seed storage facility; growth rooms.

**UNIVERSITY OF WINDSOR**
Dept. of Biological Sciences
Windsor, Ontario, Canada N9B 3P4
519-253-4232

**DEPARTMENT OR PROGRAM:** Environmental & Population Biology (20 faculty)
Contact: Dr. H. B. Fackrell
Telephone: 519-253-4232

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 12 | YES | NO | NO | NO | YES | 2 | 10 |
| Ph.D. | 18 | YES | YES | NO | YES | YES | 2 | 10 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 16 | 8 | 2 | 2 | 20 | 7 |
| Ph.D. | 4 | 5 | 4 | 4 | 5 | 1 |

Other: Federal, provincial, and University scholarships are also available.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 18 | 9 | | 27 | | 45 |
| Ph.D. | | 50 | 20 | | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic biology and evolutionary genetics.

Formal Teaching/Research Arrangements With Other Institutions: Several individual arrangements but no joint programs. Discussion in progress on a joint Ph.D. program with Wayne State University, Detroit, MI.

Specialized Facilities: Extensive greenhouse and growth chambers; herbarium facilities with catalogues available on collections in each area; wet facilities, tanks, and flumes.

**UNIVERSITY OF WISCONSIN, GREEN BAY**
Graduate Program
Green Bay, WI 54302
414-465-2111

**DEPARTMENT OR PROGRAM:** Environmental Science (30 faculty)
Contact: Dr. Paul E. Jager
Telephone: 414-465-2277

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00
Other: Suitable background in natural sciences.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | NO | 0 | 0 |

Other: Seven core courses plus thesis.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 5 | 2 | 2 | 20 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 20 | | 10 | 40 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology, statistics, mathematics.

Formal Teaching/Research Arrangements With Other Institutions: Univ. of Wisconsin Sea Grant Program.

Specialized Facilities: Herbarium; greenhouse; Richter Natural History Collection; Xerox Sigma-6 mainframe computer; close proximity to aquatic and terrestrial field sites including Nature Conservancy areas in Door County.

**UNIVERSITY OF WISCONSIN, LACROSSE**
LaCrosse, WI 54601
608-785-8067

**DEPARTMENT OR PROGRAM**: Biology (28 faculty)
Contact: Dr. James Parry
Telephone: 608-785-8246

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00
Other: General biology, vertebrate zoology, plant biology, general ecology, genetics, cell physiology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | YES | YES | 0 | 0 |

Other: One graduate course outside of biology; 4 semesters of graduate seminar.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 12 | 2 | 3 | 25 | 7 |

**RECENT PROGRAM GRADUATES** - No information available.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology.

Formal Teaching/Research Arrangements With Other Institutions: Graduate assistantships with the LaCrosse National Fisheries Research lab, Fish and Wildlife Service.

Specialized Facilities: Mississippi River; research vessels on river.

**UNIVERSITY OF WISCONSIN, MADISON**
Graduate School
Madison WI 53706
608-262-1058

**DEPARTMENT OR PROGRAM**: Department of Botany (16 faculty)
Contact: Eldon Newcomb
Telephone: 608-262-2058

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 2.75 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 9 | NO | NO | NO | NO | YES | 0 | 0 |
| Ph.D. | 12 | NO | YES | YES | YES | YES | 1 | 20 |

Other: Required areas of competence for M.S. and Ph.D. include genetics, ecology or systematics, plant anatomy or morphology, plant physiology, cryptogamic botany. Also, four 1-credit seminars are required for the PhD, two for the MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | 0 | 3 | 3 | 5 | 3 |
| Ph.D. | | 8 | 4 | 4 | 35 | 3 |

Other: There are 20 teaching assistantships available for MS and PhD students combined.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 15 | | 50 | | 20 |
| Ph.D. | 10 | 25 | 25 | | 15 | 25 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecological theory; community analysis; population studies; evolution.

Specialized Facilities: Extensive library facilites; large herbarium; networked personal computer system; well-equipped physiological ecology laboratory.

**UNIVERSITY OF WISCONSIN, MADISON**
Institute for Environmental Studies
64 Science Hall, 550 No. Park St
Madison, WI 53706
608-262-0651

**DEPARTMENT OR PROGRAM**: Land Resources Program
Contact: Prof. Dennis R. Keeney
Telephone: 608-262-0651
Other Programs Offering Graduate Education in Ecology: Environmental Monitoring, contact Prof. Ralph W. Kiefer, 608-262-0651; Water Resources Management, contact Erhard F. Joeres, 608-262-0651.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 64 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 2 | 5 | | 2 | 85 | 20 |
| Ph.D. | 2 | 5 | | 4 | 45 | 3 |

Other: These figures refer to all IES students, not only those in the Land Resources Program.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | | | | | |
| Ph.D. | 5 | 47 | 12 | 6 | 1 | 29 |

Other: These figures reflect all MS and PhD students combined.

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Environmental areas with emphasis on land and water issues, remote sensing techniques, energy analysis and policy.

Formal Teaching/Research Arrangements With Other Institutions: A masters level curriculum is also available in Energy Analysis and Policy. All of these programs are interdepartmental, drawing heavily on affiliations with 25 different departments on campus.

Specialized Facilities: Large, well-equipped biotron; palynological and tree-ring laboratories; computer links to NCAR and NASA; well equipped image processing lab; IES reading room.

**UNIVERSITY OF WISCONSIN, MADISON**
Graduate School Admissions, Room 232, Bascom Hall
Madison, WI 53706
608-262-2433

**DEPARTMENT OR PROGRAM**: Landscape Architecture (13 faculty)
Contact: Arnold Alanen
Telephone: 608-263-7300

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.75
Other: The GRE is required if financial aid is requested.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 34 | YES | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | 3 | 3 | 4 | 15 | 4 |

Other: Ecology students compete with others for the 4 departmental teaching assistantships; other data refer to ecology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 50 | 15 | 20 | 5 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Design, management, restoration of native plant communities; assessment of vegetation, impact prediction, mine reclamation.

Formal Teaching/Research Arrangements With Other Institutions: International Crane Foundation, Dane County Parks, City of Madison Conservation Parks, Native Conservancy - Wisconsin Chapter, Department of Natural Resources, Bureau of Endangered Resources, Wisconsin Department of Transportation.

Specialized Facilities: Herbarium & arboretum; Center for Restoration Ecology; botany/zoology library; agriculture library; Kemp & Trout Lake Biological Stations; state natural areas; experimental sites at International Crane roundation; Madison Academic Computing Center.

**UNIVERSITY OF WISCONSIN, MADISON**
Center for Limnology, 680 North Park Street
Madison, WI 53706
608-263-3264

**DEPARTMENT OR PROGRAM:** Oceanography and Limnology Program (18 faculty)
Contact: Dr. David E. Armstrong
Telephone: 608-262-2470

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: One year each of college level biology, chemistry, physics, and calculus.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | | NO | | YES | | |
| Ph.D. | | YES | | YES | YES | YES | | |

Other: Field experience; thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 2 | 10 | 2 |
| Ph.D. | | | | 5 | 10 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 60 | | 40 | | |
| Ph.D. | 40 | 20 | | | 40 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology.

Formal Teaching/Research Arrangements With Other Institutions: Use of research vessels belonging to other institutions for oceanographic studies.

Specialized Facilities: Well-equipped year-round laboratory at Trout Lake in northern Wisconsin; research vessels; Water Chemistry Laboratory.

**UNIVERSITY OF WISCONSIN, MADISON**
Graduate School, Bascom Hall
Madison, WI 53706
608-262-2433

**DEPARTMENT OR PROGRAM:** Wildlife Ecology (9 faculty)
Contact: Robert L. Ruff
Telephone: 608-262-2671

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO
Other: BS in biological sciences or equivalent.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 18 | YES | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 18 | YES | YES | NO | YES | YES | 0 | 0 |

Other: For both MS & PhD, students must take any courses they have not previously taken that the department requires of its own BS students.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 15 | 2 | 2 | 15 | 7 |
| Ph.D. | 1 | 5 | 4 | 4 | 6 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | 40 | | 50 | | 10 |
| Ph.D. | | 40 | 40 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Avian and mammalian population dynamics; endangered species; wildlife management; habitat relationships of birds and mammals; physiological ecology.

Formal Teaching/Research Arrangements With Other Institutions: Organization for Tropical Studies; Lake Itasca Forestry and Biological Station; Cooperative Wildlife Research Unit (US Dept. of Interior); National Wildlife Health Laboratory.

Specialized Facilities: Large departmental library containing material on avian and mammalian ecology (>250,000 items) as well as university holdings in Biological Sciences. The department houses the Wisconsin Cooperative Wildlife Research Unit.

**UNIVERSITY OF WISCONSIN, MILWAUKEE**
Graduate School, P.O. Box 340
Milwaukee, WI 53201
414-963-4982

**DEPARTMENT OR PROGRAM:** Biological Sciences/Terrestrial Ecology, Ethology, Limnology Programs (13 faculty)
Contact: Ethel Sloane
Telephone: 414-963-4214

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 2.75 — Minimum GRE Scores Required: NO

Other: For MS, physics with lab (1 year), chemistry through organic, calculus or biometry, courses in 3 areas of plant or animal science (cell or molecular, ecology, organismic). Advanced biology GRE. For PhD, 30 credits in biology, 2 math courses, acceptance by major professor in addition to above.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 54 | NO | YES | YES | YES | YES | 0 | 0 |

Other: Course in data analysis may substitute for a language.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 14 | 6 | 3 | 3 | 14 | 4 |
| Ph.D. | 9 | 6 | 4 | 5 | 7 | 2 |

Other: The assistantships referred to here are available to all Biology students; the remainder of these figures refer to terrestrial ecology, ethology, and limnology students only.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 21 | 25 | 3 | 36 | | 14 |
| Ph.D. | 6 | 15 | 31 | | 30 | 15 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Wetland, forest, and landscape ecology; avian ecology, especially communication, migration physiology, and behavior; limnology, including marine and microbial ecology; plant/animal interactions; plant population ecology.

Formal Teaching/Research Arrangements With Other Institutions: CIC Travelling Scholar Program (Big 10 schools & UCS); UWM - Medical College of Wisconsin. Adjunct research faculty from the Milwaukee Public Museum.

Specialized Facilities: Computer center; minicomputers; greenhouse & herbarium; excellent library; field station (31 mi. away) with resident manager; Center for Great Lakes Studies (+ vessel), a large research facility on harbor (20+ assoc. faculty, 28 support staff).

**UNIVERSITY OF WYOMING**
Admissions Office, Knight Hall
Laramie, WY 82071
307-766-5160

**DEPARTMENT OR PROGRAM**: Botany/Ecology Program (7 faculty)
Contact: Dr. William A. Reiners
Telephone: 307-766-4393

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1000 verb. & quant. combined

Other: BS in a biological science with demonstrated competence in ecology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 20 | NO | NO | NO | YES | YES | 1 | 18 |
| Ph.D. | 72 | NO | YES | NO | YES | YES | 1 | 18 |

Other: All MS and PhD candidates will be responsible for basic concepts in genetics, physiology, morphology, and evolutionary and environmental biology. PhD candidates must also demonstrate skill in two peripheral areas, e.g., languages, computer programming, or statistics.

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 1 | 2 | 2 | 4 | 1 |
| Ph.D. | 2 | 3 | 5 | 3 | 5 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | | 10 | 50 | | 30 |
| Ph.D. | | 20 | 50 | | 20 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological ecology, ecosystem analysis, vegetation ecology, biophysical ecology.

Formal Teaching/Research Arrangements With Other Institutions: Collaborative research arrangements with the U.S. Forest Service, National Park Service, and Wyoming Water Research Center.

Specialized Facilities: Rocky Mountain Herbarium; excellent library and computers; well-equipped laboratories for chemical analyses and field-oriented physiological studies; access to National Forests and National Parks, including a research station in Grand Teton NP.

**UNIVERSITY OF WYOMING**
Knight Hall
Laramie, WY 82071
307-766-5160

**DEPARTMENT OR PROGRAM:** Range Management (8 faculty)
Contact: W. A. Laylock
Telephone: 307-766-2263

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 900 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 42 | NO | YES | YES | YES | YES | 0 | 0 |

Other: For the M.S., an undergraduate degree in range management or equivalent in coursework is normally required.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 8 | 2 | 2 | 8 | 4 |
| Ph.D. | 0 | 2 | 3 | 3 | 2 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 33 | 33 | | 33 | | |
| Ph.D. | | 25 | 75 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Rangeland ecology, production ecology, herbivory, land reclamation.

Specialized Facilities: Rocky Mountain Herbarium (almost 500,000 specimens); separate mycological herbarium; no formal field stations, work is done throughout state.

**UNIVERSITY OF WYOMING**
Box 3435, University Station
Laramie, WY 82071
766-5160

**DEPARTMENT OR PROGRAM**: Zoology (20 faculty)
Contact: William Gern
Telephone: 307-766-4207
Other Programs Offering Graduate Education in Ecology: Ecology/Wildlife (12 faculty), contact Mark S. Boyce, 307-766-5373.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: 900 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | | | | YES | YES | 1 | 18 |
| Ph.D. | 72 | | | | YES | YES | 1 | 18 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 11 | 14 | 2 | 2 | 41 | |
| Ph.D. | 15 | 4 | 4 | 4 | 25 | |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 17 | 62 | | 21 | | |
| Ph.D. | 28 | 43 | 29 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Field wildlife/ecology activities.

Formal Teaching/Research Arrangements With Other Institutions: Cooperative agreements with US Dept. of Interior, US Dept. of Agriculture.

Specialized Facilities: Red Buttes Environmental Biology Laboratory, UW-NPS Research Center, The Vertebrate Museum, Wyoming Cooperative Research Unit, science library, animal house, research facilities, computer on-line terminals.

**UTAH STATE UNIVERSITY**
School of Graduate Studies, UMC 09
Logan, UT 84322
801-750-1189

**DEPARTMENT OR PROGRAM:** Ecology Center
Contact: F. H. Wagner

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1100 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | YES | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 88 | YES | YES | | YES | YES | 0 | 0 |

Other: This is an interdepartmental program. Student may be based in any of 7 departments (Biology, Plant Science, Geology, Forest Resources, Fisheries & Wildlife, Range Science, and Soil Science and Biometeorology).

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 15 | 3 | 3 | 30 | 6 |
| Ph.D. | 4 | 25 | 4 | 4 | 15 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 35 | | 40 | | |
| Ph.D. | 10 | 10 | 80 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant ecophysiology; plant & animal communities; animal populations and behavior; strengths embrace both aquatic & terrestrial environments with emphasis in montane, arid, and semiarid systems.

Formal Teaching/Research Arrangements With Other Institutions: Exchange with University of Wurzburg, West Germany. Program developing with Chinese Academy of Sciences.

Specialized Facilities: The usual for a large University; several field stations including Bear Lake Biological Laboratory.

**UTAH STATE UNIVERSITY**
School of Graduate Studies - UMC 09
Logan, UT 84322
801-750-1189

**DEPARTMENT OR PROGRAM**: Fisheries and Wildlife (18 faculty)
Contact: Joseph A. Chapman
Telephone: 801-750-2459

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 3.20

GRE Required: YES
Minimum GRE Scores Required: 1100 verb. & quant. combined

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | | | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | | | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 0 | 30 | 2 | 2 | 35 | 15 |
| Ph.D. | 2 | 20 | 3 | 3 | 20 | 6 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 9 | 50 | | 30 | | 11 |
| Ph.D. | 20 | | 60 | | | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Wildlife biology, fishery biology, population ecology, wildlife ecology, aquatic ecology, animal behavior, wildlife and fisheries management.

Formal Teaching/Research Arrangements With Other Institutions: Ecology Center; Utah Cooperative Fishery and Wildlife Research Unit and the Wildlife Extension Program; the USDA Predator Ecology and Behavior Project; USDA Forest Service Wildlife Habitat Relationships Unit.

Specialized Facilities: Bear Lake Biological Lab, Green Canyon Ecology Research Station, Millville Predator Research Site, Logan Experimental Fish Hatchery, Snowville Desert Ecology Compound, Bear River Migratory Bird Refuge and Marsh Ecology Labs, varied ecosystems nearby.

**VANDERBILT UNIVERSITY**
Graduate School, 336 Kirkland Hall
Nashville, TN 37235
615-322-2651

**DEPARTMENT OR PROGRAM:** General Biology (12 faculty)
Contact: Dr. Clint Curter
Telephone: 615-322-2961

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.25
Other: Three letters of recommendation.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | YES | YES | 0 | 0 |
| Ph.D. | 72 | NO | YES | YES | YES | YES | 1 | 8 |

Other: PhD also requires a formal research proposal in NSF/NIH format after the qualifying exam.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 0 | 2 | 2 | 3 | 1 |
| Ph.D. | 7 | 1 | 5 | 5 | 7 | 1 |

Other: Values above include both plant taxonomy and ecology students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 12 | | 37 | | 12 |
| Ph.D. | | | 67 | | 33 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Physiological plant ecology, ecological genetics, terrestrial community ecology.

Formal Teaching/Research Arrangements With Other Institutions: Highlands Biological Station, Highlands NC; Tech Aqua (field station of Tenn. Tech. Univ.); informal ties to Mountain Lake Biological Station (of Univ. Virginia). Faculty research in Baja Sur, mojave desert, and Big Bend National Park, Texas.

Specialized Facilities: Excellent herbarium, strong in southeastern flora; greenhouse complex adjacent to departmental building; specialized science and medical libraries; good collaborative relationships with other Vanderbilt departments (geology, molecular biology, etc.).

**VIRGINIA COMMONWEALTH UNIVERSITY**
Department of Biology, 816 Park Avenue
Richmond, VA 23284
804-257-1562

**DEPARTMENT OR PROGRAM**: Biology (25 faculty)
Contact: Dr. John F. Pagels
Telephone: 804-257-1562

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 2.70 — Minimum GRE Scores Required: NO

Other: An advanced biology GRE score of 50th percentile is required. Required courses include organic chemistry, physics, and core of biology courses: genetics, general ecology, cell biology, anatomy, plant courses, physiology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 38 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 16 | 2 | 2 | 2 | 45 | 15 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 50 | 20 | 5 | 15 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, physiological ecology.

Formal Teaching/Research Arrangements With Other Institutions: Virginia Institute of Marine Science; Medical College of Virginia.

Specialized Facilities: Excellent libraries, herbarium, greenhouses, and computer facilities; major animal holding facility; vertebrate museums.

**VIRGINIA POLYTECHNIC INSTITUTE**
Graduate School, Sandy Hall
Blacksburg, VA 24061
703-961-6691

**DEPARTMENT OR PROGRAM:** Department of Fisheries & Wildlife Sciences (13 faculty)
Contact: Dr. Gerald H. Cross
Telephone: 703-961-5573

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 1 | 0 |
| Ph.D. | 88 | NO | YES | NO | YES | YES | 1 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 22 | 3 | 3 | 28 | 12 |
| Ph.D. | 3 | 9 | 4 | 4 | 12 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 50 | | 20 | | 20 |
| Ph.D. | | 60 | 30 | | 10 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Wildlife ecology, fish ecology, wildlife nutrition, wildlife toxicology, fisheries management, wildlife management.

Specialized Facilities: Fish culture building; outdoor animal pens; IBM 3081 and 4341-II systems, three VAX 11/780 systems. Library has 1,500,000 volumes, more than 2,100 serials.

**WAKE FOREST UNIVERSITY**
Graduate School
Winston-Salem, NC 27109
919-761-5301

**DEPARTMENT OR PROGRAM:** Biology Department (18 faculty)
Contact: Dr. Ron Dimock
Telephone: 919-761-5323

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 24 | NO | NO | NO | YES | YES | 2 | 10 |
| Ph.D. | | NO | YES | NO | YES | YES | 2 | 10 |

Other: Advisory exams upon entrance are mandatory.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 1 | 2 | 3 | 12 | 4 |
| Ph.D. | 5 | 3 | 4 | 4 | 10 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 20 | | 50 | | 10 |
| Ph.D. | 15 | 15 | 50 | | 15 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, mammology, parasite ecology, population genetics.

Formal Teaching/Research Arrangements With Other Institutions: Savannah River (SC) Ecology Laboratory, Highlands (NC) Biological Station.

Specialized Facilities: Field station, including 3 boats, located only 40 minutes' drive away.

**WALLA WALLA COLLEGE**
College Place, WA 99324
509-527-2327

**DEPARTMENT OR PROGRAM:** Dept. of Biological Sciences (7 faculty)
Contact: Dr. Ronald L. Carter
Telephone: 509-527-2602

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Minimum GRE Scores Required: 50th percentile on verb. & quant.

Other: General biology, developmental biology, genetics, physiology, ecology, inorganic & organic chemistry, physics, math through calculus.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 45 | YES | YES | NO | YES | YES | 3 | 8 |

Other: One summer term of attendence at a marine station.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 2 | 2 | 2 | 8 | 3 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 10 | 10 | 30 | 40 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Ecology, marine science, behavior.

Formal Teaching/Research Arrangements With Other Institutions: Arrangements made on individual basis.

Specialized Facilities: Marine station, Anacortes, WA; state-of-the-art computer facilities & excellent support staff; museum & herbarium; spacious building.

**WASHINGTON STATE UNIVERSITY**
Office of Admissions
Pullman, WA 99164
509-335-5586

**DEPARTMENT OR PROGRAM**: Botany (12 faculty)
Contact: Dr. R. N. Mack
Telephone: 509-335-3066

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO
Other: Organic chemistry, physics, calculus.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 21 | YES | NO | NO | | YES | 0 | 0 |
| Ph.D. | 32 | YES | YES | NO | YES | YES | 0 | 0 |

Other: Thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 4 | | 2 | 2 | 5 | 2 |
| Ph.D. | 10 | 8 | 4 | 4 | 19 | 4 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 15 | 15 | | 50 | | 20 |
| Ph.D. | 15 | 15 | 50 | | 10 | 10 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population and evolutionary biology; coevolution; plant-animal interactions; ecophysiology.

Formal Teaching/Research Arrangements With Other Institutions: Member institution of NORCUS (Northwest College and University Association for Science) from which finanical support may be obtained for dissertation research.

Specialized Facilities: Ownbey Herbarium (250,000 vascular specimens); Smoot Hill Biological Station; IBM 3090, Amdahl V8 and VAX 11/780 computers; science library of 470,000 volumes and 17,000 serials; 6000 sq. ft. greenhouse, 20 reach-in or walk-in growth chambers.

**WASHINGTON STATE UNIVERSITY**
Office of Admissions
Pullman, WA 99164
509-335-5586

**DEPARTMENT OR PROGRAM**: Environmental Science & Regional Planning (5 faculty)
Contact: Dr. D. Cronn
Telephone: 509-335-8536

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00
Other: Calculus, organic chemistry, ecology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 30 | 2 | 3 | 35 | 10 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 40 | 10 | 20 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Hazardous waste management; natural resource management; agricultural ecology; human ecology; ecosystem ecology; rural, regional, and environmental planning; environmental quality control (air & water).

Specialized Facilities: Student computer facility (a free student account is available to all students).

**WASHINGTON STATE UNIVERSITY**
Office of Admissions
Pullman, WA 99164
509-335-5586

**DEPARTMENT OR PROGRAM**: Zoology (25 faculty)
Contact: Dr. Howard Hosick
Telephone: 509-335-3553

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — GRE Required: YES
Score: 3.00 — Minimum GRE Scores Required: NO

Other: Organic chemistry, calculus, physics, 30 hrs of biology including developmental biology, ecology, genetics, evolution, and physiology.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 21 | NO | NO | | | YES | 1 | 9 |
| Ph.D. | 34 | NO | YES | YES | YES | YES | 2 | 9 |

Other: Thesis and nonthesis options available for MS.

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 13 | 1 | 2 | 3 | 15 | 6 |
| Ph.D. | 19 | 9 | 4 | 4 | 30 | 5 |

Other: PhD students are supported for 6 years beyond BS or 4 years beyond MS.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 10 | 50 | | 40 | | |
| Ph.D. | | 5 | 75 | | 20 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Avian and mammalian behavior; population and community ecology of vertebrates; ecology and speciation of vertebrates; avian ecophysiology; computer simulation of ecosystems; coevolution; population dynamics; evolutionary ecology.

Formal Teaching/Research Arrangements With Other Institutions: Shared courses with the University of Idaho.

Specialized Facilities: University field station of 800 acres; Charles R. Connor Museum of Zoology.

**WASHINGTON UNIVERSITY**
Program in Population Biology, 660 Euclid Avenue
St. Louis, MO 63130
362-3365

**DEPARTMENT OR PROGRAM:** Population Biology Program (10 faculty)
Contact: Alan Templeton
Telephone: 889-6868

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | | NO | YES | NO | YES | NO | 1 | |

Other: Dissertation prospectus must be approved.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | 0 | | 4 | 5 | 20 | 4 |

Other: All PhD students are supported on research assistantships.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | | 5 | 70 | 20 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Population biology (population ecology, ecological genetics, population genetics, molecular evolution).

Formal Teaching/Research Arrangements With Other Institutions: Missouri Botanical Garden; Organization for Tropical Studies.

Specialized Facilities: Biology library, greenhouses, Tyson Field Station, Missouri Botanical Garden, herbarium, animal care facilities, field plots, 4 buildings in Biology Department.

**WEST VIRGINIA UNIVERSITY**
Department of Biology
Morgantown, WV 26506
304-293-5201

**DEPARTMENT OR PROGRAM**: Biology (20 faculty)
Telephone: 304-293-5201

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: Verb. 500, Quant. 500

Other: Advanced biology GRE required.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 2 | 18 |
| Ph.D. | 12 | YES | YES | NO | YES | YES | 2 | 18 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 5 | 0 | 3 | 3 | 4 | 3 |
| Ph.D. | 3 | 1 | 4 | 4 | 3 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | | | | 50 | | 50 |
| Ph.D. | | 50 | 50 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Plant ecology.

Specialized Facilities: Regional herbarium; campus arboretum; Terra Alta Biological Station; 7000-acre experimental forest 15 miles away; greenhouse attached to biology building; good computer facilites with free programming services in most commonly used languages.

**WEST VIRGINIA UNIVERSITY**
Admissions and Records
Morgantown, WV 26505
304-293-2121

**DEPARTMENT OR PROGRAM:** Forest Ecology (3 faculty)
Contact: Dr. Harry Wiant
Telephone: 304-293-3411
Other Programs Offering Graduate Education in Ecology: Wildlife Ecology (4 faculty), contact D. E. Samuel, 304-293-4797.

**PROGRAM REQUIREMENTS**

Entrance
Minimum GPA Required: YES — Score: 3.00
GRE Required: YES — Minimum GRE Scores Required: 1200 verb. & quant. combined
Other: GRE required only for PhD.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | 60 | NO | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 7 | 22 | 2 | 2 | 25 | 10 |
| Ph.D. | 0 | 4 | 3 | 3 | 5 | 2 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 20 | 70 | | 10 | | |
| Ph.D. | 10 | 80 | 10 | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Forest ecology; nutrient cycling; forest radiation; disturbed land ecosystems; forest/insect ecology (host-pest relationships); forest birds/habitat; biometrics. We have a strong applied approach which results in an excellent employment record.

Formal Teaching/Research Arrangements With Other Institutions: Member, Oak Ridge Associated Universities.

Specialized Facilities: 7000-acre University research forest; wier, additional forested land throughout state; computers; atomic absorption analyzer; calorimeter; greenhouse; herbaria; forestry library in addition to University libraries.

**WESTERN CAROLINA UNIVERSITY**
Graduate School, Robinson Administration Building
Cullowhee, NC 28723
704-227-7398

**DEPARTMENT OR PROGRAM**: Biology (12 faculty)
Contact: Dr. F. W. Harrison
Telephone: 704-227-7244

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 2.50
GRE Required: YES — Minimum GRE Scores Required: 800 verb. & quant. combined
Other: College algebra, college chemistry, college physics.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | YES | YES | YES | 0 | 10 |

Other: An MAEd is also offerred, involving an additional 12 hours of professional education courses and requiring no thesis.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 10 | 2 | 12 | 2 | 12 | 11 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 20 | 20 | 10 | 50 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Field biology, biochemistry (lipid metabolism, flavenoid chemistry), cellular biology (freshwater sponges), field ecology (vegetation of the southern Appalachians; vegetation history).

Formal Teaching/Research Arrangements With Other Institutions: Cooperative Ph.D. program with Bowman Gray School of Medicine.

Specialized Facilities: Herbarium (20,000-specimen regional collection); greenhouse; walk-in growth chambers; microscope lab; aquatic research facility; animal room; insectary; chemistry instrumentation; Highlands Biological Station only 45 minutes away; Coweeta Hydrologic Laboratory.

**WESTERN KENTUCKY UNIVERSITY**
Graduate College
Bowling Green, KY 42101
502-745-2446

**DEPARTMENT OR PROGRAM:** Biology (20 faculty)
Contact: Dr. Val Dunham
Telephone: 502-745-3696

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 2.80
GRE Required: YES — Minimum GRE Scores Required: Verb. 450, Quant. 450
Other: Biophysics (2 sem), organic chemistry (1 sem).

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 6 |

Other: M.S. requires research tool course in addition to the 30 hours of biology coursework; it may be a language, computer science, statistics, or even electron microscopy, depending on thesis research topic.

**STUDENT PROFILE**

| | Teaching Assistantships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | 2 | 2 | 11 | 5 |

Other: There are 8 teaching assistantships and 3 research assistantships for all biology students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | 25 | 15 | 30 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic ecology, plant autecology.

Formal Teaching/Research Arrangements With Other Institutions: No formal agreements but ecology students can develop projects under cooperative education agreement with industry, government, or other laboratories.

Specialized Facilities: Growth chambers; good library; access to Upper Cumberland Biological Field Station; thesis students under 5 of the 18 graduate faculty do ecological research and over 30% of the 115 MS students since 1968 have emphasized ecology.

**WESTERN MICHIGAN UNIVERSITY**
Graduate College
Kalamazoo, MI 49008
383-1660

**DEPARTMENT OR PROGRAM**: Biology & Biomedical Sciences (15 faculty)
Contact: Richard W. Pippen
Telephone: 383-1674

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES
Score: 2.60

GRE Required: YES
Minimum GRE Scores Required: Verb. 450, Quant. 450

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | NO | 0 | 0 |

Other: Thesis and non-thesis options are available for the MS; research project is required for both thesis and non-thesis options.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 18 | 0 | 2 | 3 | 25 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 30 | | | 40 | 30 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Avian ecology, plant systematics, wetland ecology, entomological behavior.

Specialized Facilities: Southwestern Michigan has a diversity of ecological habitats; decent library; 26,000-specimen herbarium; Apple microcomputer and access to DEC 10 mainframe computer.

**WESTERN STATE COLLEGE OF COLORADO**
Graduate Office
Gunnison, CO 81230
303-943-2063

**DEPARTMENT OR PROGRAM:** Natural Science & Math (19 faculty)
Contact: Hugo A. Ferchau
Telephone: 303-943-2146

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 2.40
Other: Statistics, computers; these can be made up later, however.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | YES | NO | | YES | 0 | 0 |

Other: Each person's program tailored to their goals; 1/2 of course work must be in exclusively graduate courses & methods classes. The GRE must be taken during the first semester of residence; a combined score of 1000 (verb. + quant.) is required. Thesis and nonthesis options are available.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 6 | 2 | 2 | 10 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 40 | 30 | 10 | 10 | 20 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Microbial ecology, mycorrhizae ecology, reclamation ecology, vegetational analysis, hot springs ecology. We utilize the massive open space of the surrounding several thousand square miles.

Formal Teaching/Research Arrangements With Other Institutions: We have a good working relationship with Colorado State University and the University of Colorado.

Specialized Facilities: Herbarium (local flora); 2 microcomputers devoted entirely to ecology; biochemistry lab with considerable attention given to ecological problems; vast outdoor laboratory with considerable natural diversity.

**WESTERN WASHINGTON UNIVERSITY**
Graduate School, Old Main 430
Bellingham, WA 98225
206-676-3170

**DEPARTMENT OR PROGRAM**: Huxley College of Environmental Studies (11 faculty)
Contact: John C. Miles
Telephone: 206-676-3520

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES — Score: 3.00
GRE Required: YES
Minimum GRE Scores Required: Verb. 500, Quant. 500

Other: BS degree, including one year each of biology and chemistry; one quarter of calculus.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 32 | YES | NO | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 3 | 8 | 2 | 3 | 20 | 5 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 50 | 35 | | 10 | 5 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Wildlife toxicology, environmental chemistry, applied ecology.

Formal Teaching/Research Arrangements With Other Institutions: Washington State University, Pharmacology Dept.; cooperative research arrangement with Washington State Game Dept.

Specialized Facilities: Environmental Center Library, Environmental Studies Building, greenhouse and animal room facilities, Institute for Watershed Studies, Institute of Wildlife Toxicology, Shannon Point Marine Lab, excellent equipment for analysis of toxic substances.

**WOODS HOLE OCEANOGRAPHIC INSTITUTION**
Education Office
Woods Hole, MA 02543
617-548-1400

**DEPARTMENT OR PROGRAM:** Biology/Biological Oceanography (with MIT) (32 faculty)
Contact: John M. Teal
Telephone: 617-548-1400

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: NO
GRE Required: YES
Minimum GRE Scores Required: NO

Other: Differential equations.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| Ph.D. | | YES | YES | NO | YES | | 0 | 0 |

Other: Biochemistry, genetics, biological oceanography.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| Ph.D. | | | 5 | 6 | 18 | 3 |

Other: All PhD students are supported on research assistantships.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Postdocs | Other |
|---|---|---|---|---|---|
| Ph.D. | 6 | 13 | 13 | 44 | 24 |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Program specializes in biological oceanography/marine ecology.

Formal Teaching/Research Arrangements With Other Institutions: Formal joint degree program with Massachusetts Institute of Technology leads to a single degree awarded by both MIT and WHOI; cross registration is possible with Harvard, Brown, and Boston Univ. Marine Program (BUMP).

Specialized Facilities: Waterfront location with easy access to all types of marine environments from ponds to salt marshes to the deep ocean, with superb equipment and facilities to study them.

**WRIGHT STATE UNIVERSITY**
Department of Biological Sciences
Dayton, OH 45435
513-873-2665

**DEPARTMENT OR PROGRAM:** Biological Sciences (20 faculty)
Contact: John Rossmiller
Telephone: 513-873-2655

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | 30 | NO | NO | NO | YES | YES | 0 | 0 |

Other: 4 credit-hour seminar and a research-based thesis.

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 6 | 0 | 2 | 2 | 6 | 4 |

Other: These figures refer only to ecology students.

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Other |
|---|---|---|---|---|---|
| M.S. | 17 | 17 | 33 | 33 | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Aquatic biology, forest and plant ecology.

Specialized Facilities: Greenhouse; herbarium; 80-ha woods, partly old growth, adjacent to offices; mainframe and personal computers readily available; central library facilities; abundant lab space; continued access to several stream and reservoir sites for aquatic studies.

**YALE UNIVERSITY**
School of Forestry & Env. Studies, 205 Prospect Street
New Haven, CT 06511
203-436-0440

**DEPARTMENT OR PROGRAM:** Forestry & Environmental Studies (43 faculty)
Contact: John C. Gordon
Telephone: 203-436-0440

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: YES
Score: 3.00 Minimum GRE Scores Required: NO
Other: Calculus I, biology, chemistry, economics courses.

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | NO | YES | NO | NO | 0 | 0 |
| Ph.D. | | YES | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | 2 | 60 | |
| Ph.D. | | | 4 | 5 | 5 | |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 25 | 5 | 10 | | |
| Ph.D. | No information available. | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Tropical ecology, international ecological & biological studies; plant ecology.

Formal Teaching/Research Arrangements With Other Institutions: Cary Arboretum of the New York Botanical Garden; Hubbard Brook Experiment Station.

Specialized Facilities: Greeley Memorial Laboratory with a greenhouse; Hubbard Brook Experiment Forest in New Hampshire; most PhD students use an IBM-PC for data collection; labs contain state-of-the-art equipment.

**YORK UNIVERSITY**
4700 Keele Street
Toronto, Ontario CANADA M3J 1P3
416-667-2426

**DEPARTMENT OR PROGRAM**: Biology/Ecology (7 faculty)

**PROGRAM REQUIREMENTS**

Entrance

Minimum GPA Required: YES GRE Required: NO
Score: 3.00

Completion

| | Course Hours | Specific Courses | Qualifying Exam | Language | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | YES | YES | NO | YES | YES | 0 | 0 |
| Ph.D. | | YES | YES | NO | YES | YES | 0 | 0 |

**STUDENT PROFILE**

| | Teaching Assist-antships | Research Assistants/ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | 14 | 0 | 2 | 2 | 10 | 5 |
| Ph.D. | 3 | 0 | 3 | 3 | 6 | 1 |

**RECENT PROGRAM GRADUATES**

| | Industry | Government | Teaching | Ph.D. Progs. | Postdocs | Other |
|---|---|---|---|---|---|---|
| M.S. | 25 | 50 | | 25 | | |
| Ph.D. | 100 | | | | | |

**STRENGTHS AND SPECIALTIES**

Subject Matter Strengths: Limnology, mammalogy.

Formal Teaching/Research Arrangements With Other Institutions: Research links with Ontario Ministry of Natural Resources and Canada Centre for Inland Waters.

Specialized Facilities: New ecology wing on biology building; walk-in incubators; freshwater laboratory; mini computers and links to mainframe computers; limnology field station.

## SURVEY FORM

The following form is provided for revisions to existing data, and for new data. If the cooperator is revising data, only the new data need be supplied. Notice at the end of the form that we have requested new data on faculty in ecology and on suggestions for additional data in later editions. Please use a separate form for each program or department described. Make copies as needed. The completed form should be returned to the Business Office, Ecological Society of America, Center for Environmental Studies, Arizona State University, Tempe AZ 85287-1201.

Explanations of information requested, which may not be intuitively obvious, follow. A more complete description of most categories is found in the introduction to the guide.

**DATE:** Date on which the form is being completed.

**DEPARTMENT OR PROGRAM: (please specify either Department or Program)**

Number of Faculty: The number of different faculty members involved in graduate education in ecology in this department or program.
Program Contact: The person whom prospective students should contact for further information about the program.
Telephone: Number of Program Contact (include area code).
Cooperator Name: The person actually filling out this form.
Telephone: Number of cooperator (including area code).

**PROGRAM REQUIREMENTS:**

Entrance: Is a specific minimum Grade Point Average (GPA) required for admission? If YES, please state the required minimum grade. Are the Graduate Record Examinations (GRE) required for admission? If YES, please state any minimum score requirements. There is space to include other entrance requirements.
Completion: ("M.S." refers to whatever masters-level degree is awarded in this program.)
Course Hours: The number of semester-hour equivalents (1 term hour = 2/3 semester hour) required for each degree.
Specific Courses: Are specific courses, other than a departmental seminar, required for this degree? (Y/N)
Qualif. Exam: Are qualifying exams (written or oral tests preceding the research requirement) required in this program? (Y/N)
Language: Is knowledge of one or more foreign languages required? (Y/N)
Thesis: Is a substantial independent research and writing effort required? (Y/N)
Final Exam: Is a final oral and/or written exam required after completion of any required thesis? (Y/N)
Required Teaching: How many semesters (1 term = 2/3 semester) of teaching by the student are required?
Hours of Teaching: What is the average number of contact hours (hours per week spent actually teaching classes) required for a teaching assistant in this program?

**STUDENT PROFILE:**

Teaching Assistantships: How many teaching assistantships are awarded to students in this program annually?
Research Assist./Fellowships: How many research assistantships and/or fellowships are awarded to students in this program annually?
Years of Student Support: What is the maximum number of years that a student can receive financial aid in this program?
Years Student in Program: How many years does it take the average student to complete this program?
Number of Students in Program: On the average, how many students are enrolled in this program at any one time?
Degrees Program Awards: On the average, how many degrees are awarded by this program annually?

**RECENT PROGRAM GRADUATES:** Please give the percentage of recent graduates that have been placed in each of the categories listed (private Industry; city, county, state, or federal Government, college Teaching, Post-Doctoral research positions, Ph.D. Programs, or Other, including pre-college teaching, consulting, etc.)

**STRENGTHS AND SPECIALTIES:**
Subject Matter Strengths: Are there any disciplinary areas which are especially strong, either in teaching or research (not necessarily so in a well-balanced department)?
Formal Teaching/Research Arrangements...: Does the Department or Program have any formal agreements with other institutions that enlarge the research or teaching facilities of the program?
Specialized Facilities: Are there any unusual and/or excellent facilities available which enhance the research/teaching capabilities of the program?

**FACULTY IN ECOLOGY PROGRAM:** Please include the following information on every faculty member who was included in the "Number of Faculty" provided above. Please use continuation pages as needed:

Name: Initials and last name.
Position: Faculty status.
Degree: Last degree earned; e.g., Ph.D., BS, MS, etc.
Year: Year last degree was earned.
Institution: College or university at which last degree was earned.
Discipline: main disciplinary interest (e.g., systems ecology, plant taxonomy, ornithology, etc; please do not list more than three).

**SUGGESTIONS FOR ADDITIONAL INFORMATION FOR INCLUSION IN LATER SURVEYS:**
Are there other kinds of information which would be useful in future editions of the guide? What is the purpose for including the information which you have suggested? Please be as specific as possible regarding the nature and the intended utility of the new information.

GUIDE TO GRADUATE EDUCATION IN ECOLOGY
IN THE UNITED STATES AND CANADA

Survey Form

Date : _____

Institution Name: _____

Admissions Office Address: _____

Telephone: _____

**DEPARTMENT OR PROGRAM:** _____ Number of Faculty: ___

Program Contact: _____ Telephone: _____

Cooperator Name: _____ Telephone: _____

**PROGRAM REQUIREMENTS:**

Entrance: Minimum GPA required (Y/N)? ___ If YES, grade: _____

GRE required (Y/N)? ___ If YES, score: _____

Other:

Completion (see Introduction for explanation):

| | Course Hours | Specific Courses | Qualif. Exam | Lang-uage | Thesis | Final Exam | Required Teaching | Hours of Teaching |
|---|---|---|---|---|---|---|---|---|
| M.S. | | | | | | | | |
| Ph.D. | | | | | | | | |
| Other: | | | | | | | | |

**STUDENT PROFILE:**

| | Teaching Assist-antships | Research Assist./ Fellowships | Years of Student Support | Years Student in Program | Number of Students in Program | Degrees Program Awards |
|---|---|---|---|---|---|---|
| M.S. | | | | | | |
| Ph.D. | | | | | | |
| Other: | | | | | | |

**RECENT PROGRAM GRADUATES:**

| | Industry | Govenment | Teaching | Post-Docs | Ph.D. Progs. | Other |
|---|---|---|---|---|---|---|
| M.S. | | | | | | |
| Ph.D. | | | | | | |

**STRENGTHS AND SPECIALITIES:**

Subject Matter Strengths: _____

_____

_____

Formal Teaching/Research Arrangements With Other Institutions: _____

_____

_____

Specialized Facilities: _____

_____

_____

_____

**ECOLOGY FACULTY** (Name; Position; Degree; Year; Institution; Discipline):

_____

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**SUGGESTIONS OF ADDITIONAL INFORMATION FOR INCLUSION IN FUTURE SURVEYS:**

_____

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_____

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_____

## 4 SOURCES OF INSTRUCTIONAL AIDS

### Environmental Software Review: 1990

The source for this software review is: Gerald A, Rich, "Environmental Software Review: 1990," Pollution Engineering, vol. XXII, No. 1, pp. 90-97.

# BENEFIT AT FIRST BYTE

*by Mike Randall and Marie Shih*

General Motors Willow Run Assembly last winter acquired AV Systems' MIRS software package to help with EPA SARA Title III and other compliance reporting. The software also serves as a year-round tool for managing the facility's chemical inventory data. Along the way, the effort is reaping other unexpected benefits.

**Evaluate System To Suit Needs:** That the system satisfied the facility's known requirements was a prerequisite for its acquisition. The implementation was compatible with the facility's IBM personal computer setup. The software could be learned in one sitting; after a few instructions, hourly personnel were entering data gathered from various sources. The package encompassed both the EPA SARA Title III inventory reporting and the significantly different county ordinance reporting. Moreover, the facility needed a comprehensive enough Form R capability to help with the rigors of Section 313 toxic chemical reporting. Enhancement and customization options were also important criteria.

The day after all the data was reviewed and corrected on the computer, the software yielded a major dividend when it reliably produced all the required reports in clear, readable, and directly-submittable format. This contrasted with prior-year efforts, when the same reports were manually and laboriously generated, with consultant help, over a period of several months.

**Accessible Information:** It wasn't until much after the annual forms were signed, sealed and delivered, however, that other system benefits have become obvious. The ad hoc reporting capability of the software has been especially indispensable. Producing accurate reports to satisfy management surveys and requests is now a manageable process. Even hourly personnel are impressed with the facility's efforts in computerizing the hazardous chemical information.

When the Health Department inquired if the facility used any products containing a particular hazardous chemical, it took one system-provided search to determine the answer. The manual alternative would have meant a major effort. More importantly, any one of several staff members could have effected the computer search—no longer is one environmental engineer burdened with the data.

**Inventory Management:** In monthly meetings of the in-plant Hazardous Material Control Committee, reports from the package provide a vehicle for communicating the participant departments' hazardous chemical information. With safety and health, waste treatment, engineering, security, production, material, traffic and purchasing departments all working on different aspects of hazardous chemicals, the system printouts keep the information consolidated and in focus. This has brought the staff into a different level of awareness about hazardous chemicals. Having the information in black and white enables the facility to evaluate and predict the impact of changes in the process or operation. A baseline now exists for measur-

ing progress in chemical management.

The increased accessibility of chemical information has expedited review of the facility's usage amounts, along with recommendation of alternate products containing less hazardous ingredients. Managing the chemical inventory is now an on-going process, not just a year-end recording of what has already occurred.

**Credibility:** The computerization has also provided credibility outside the facility. With the software package in place, the state inspection was shorter and simpler. The inspector did not take long to realize that GM Willow Run had its act together with respect to hazardous chemical data. A short explanation of the data screens and the reporting options soon satisfied that aspect of the investigation.

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*Mike Randall is environmental supervisor and facility emergency coordinator at GM Willow Run, Ypsilanti, MI. Marie Shih is project manager for the Material Inventory Report System (MIRS) software package at AV Systems, Ann Arbor, MI.*

*This special editorial report marks the fifth year that POLLUTION ENGINEERING has published a review of commercially available software for the environmental field. The first review in 1985 contained only 50 software programs. The next year the market seemed to explode—so we thought. That year we discovered and reviewed approximately 100 programs. However, each year the number of environmental software programs has virtually doubled, and we see no end in sight.*

*Environmental managers and engineers are becoming more accustomed to using computers. And as governmental agencies insist upon more and more information, the need for computers to handle the ever increasing amounts of data becomes almost imperative. Thankfully, most of the companies publishing software today closely track governmental requirements and try to develop programs to ease the reporting burden on environmental professionals.*

*According to Richard Pohanish, Vice President with CHEMTOX, "The biggest management challenge of the coming decade will be dealing with environmental problems. Everything that business does in the 1990s will be scrutinized for its environmental impact and its effect on a skeptical public. Products will be abandoned, and many of the companies that produce them will cease to exist. The viability of many manufacturing processes will be threatened. Public expectations will force corporate America to find ways to gracefully yield to the onslaught of protest over toxics, dirty air and water, acid rain, hazardous wastes, a damaged ozone layer and fears of global warming.*

*"Environmental regulations will continue to proliferate and become more complex. California Proposition 65 has been described as the "world's toughest" toxicity and water quality standards. To start the 1990s legislative tidal wave, this year some 28 states are expected to deliberate or pass similar laws. The legislative process has already begun in New York, Illinois, Massachusetts, and Hawaii.*

*"For industries using hazardous chemicals, leaks, spills and human exposure are an unfortunate fact of life. The lack of—or improperly organized—information will certainly exacerbate any accident, and lead to public outcry, stiffer legislation, and economic burden. Needless to say, the best protection from these unfortunate realities is good engineering and information systems in the hands of knowledgeable managers.*

*"Software offers solutions to problems of complexity, deadlines and the level of regulatory change anticipated during the next decade. Technologically advanced software packages are already replacing cumbersome three-ring binders full of material safety data sheets and regulations, as well as number-crunching drudgery.*

*"Without the use of software many firms, especially those with limited resources, could find that regulatory compliance costs exceed their assets. On the other hand, commitment to environmental software technology can save time and money, and lead to significantly improved environmental performance. The regulatory climate is more dynamic than ever, and deregulation of the past two decades is dead."*

*At POLLUTION ENGINEERING, the review of environmental software goes on continually. Jack Brown, Nick Cheremisinoff, Steve and Dick Young and I spend a substantial amount of time reading software instruction manuals and trying out various programs. Each of us always has a backlog of programs to test.*

*One of the important things we have determined is that programs are getting better. Five years ago, it wasn't unheard of for some software publishers to simply repackage their programs and sell them as being oriented to the environmental field. Today things have changed. Most software publishers spend a substantial amount of time field testing programs with potential users.*

*Because of the huge number of commercially available environmental programs, we have decided to focus this year's review on new and upgraded software. We have also updated the environmental software summary tables to include other programs that we were not able to describe because of space limitations.*

*It is the sincere hope of the editorial staff that you will let us know of any additional programs we may have missed. Additionally, we would like to hear from you about good or bad experiences you may have had in trying to use a specific program.*

*Unless it is otherwise noted, the minimum configuration for the following software programs discussed in this review is IBM-PC compatible, 512 K RAM, two 360 K floppy drives, and DOS 2.0.*

**AIMS,** ***Asbestos Information Management System.***
This system is an integrated database of numbers and broadcast quality video images which can locate floor plans, data and a detailed photographic view of any asbestos problem. The system is based on a touch sensitive screen. Data storage is completed by taking photos or videos of areas (or blueprints) of interest; images are captured by video hardware of AIMS; text and full color editing can then be employed to enhance and describe the screen; images files are linked into pre-structured groups. Users can browse through the

# Air

| COMPANY | PROGRAM | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| Bounicore-Cashman | APCECOST | | | | | | h | | | |
| Bowman | Meteorological Data Processing | c | | | | | | | | |
| Bowman | Toxic Gas Emergency Models | c | | | | | | | | |
| Bowman | Dispersion Modeling | c | | | | | | | | |
| Chemical Manufacturers Association | Emissions from Equipment (POSSEE) | | | | | g | | | | |
| Dace Industries, Ltd | Direct to Metal Development | | d | | | | | | | |
| Dawn Graphics | CoVOCalc | | | | | | | | | |
| Engineering Applications Specialists | Chart/PC | | | | | | | | | |
| Environmental Systems Corp. | CARE II | | | | | | | | | |
| Enviroplan | AIRDAS | | | | | | | | j | |
| Enviroplan | CEMDAS | | | e | | | | | | |
| ENSR | HASTE | c | | | | | | | | |
| ENSR | DIDMS | c | | | | | | | | |
| ENSR | VOCCMS | | | | | g | | | | |
| Galson Technical Services | Air-1 | c | | | | g | | | | |
| Gulf Publishing Company | Chemcalc II: AMSDS | | d | | | | | | | |
| Hatch Associates Ltd. | Ventdata | | | | | | | | | k |
| Impell Corp. | Mesochem II | | | | | | | | | |
| Impell Corp | Mesochem | c | | | | | | | | |
| Jerome Barta | APE | | | | | g | | | | |
| Jim Clary & Associates | TOXIC GAS MODELS | c | | | | | | | | |
| Jim Clary & Associates | MOBILE SOURCE MODELS | c | | | | | | | | |
| Jim Clary & Associates | EPA UNAMAP MODELS | c | | | | | | | | |
| Kelon Corp | Blue Sky | | | | | g | | | | |
| Odessa Engineering | Environmental Aide | | | | | | | | | |
| Quadrex | GERS | | | | | | | | | |
| Radian | CHARM | | | | | | | | | |
| Safer Emergency Systems | SAFER | c | | | | | | | | |
| Safer Emergency Systems | TRACE II | c | | | | | | | | |
| Software Systems Corp. | Psychro | | | | f | | | | | |
| Techdata | Storage Tank Emission Calculations | | | | | g | | | | |
| Technica International | Whazan | c | | | | | | | | |
| TECS Software | Flarehdr | | d | | | | | | | |
| TECS Software | Cyclone | | d | | | | | | | |
| TECS Software | Amine-T | | d | | | | | | | |
| TECS Software | Flarenh | | d | | | | | | | |
| TMI | PC Weather Station | | | | | | | | j | |
| Trinity Consultants | Breeze Air | c | | | | | | | | |
| Trinity Consultants | Breeze Haz | c | | | | | | | | |

c = Dispersion Modeling
d = Design
e = Continuous Emission Monitoring
f = Psychrometric Chart
g = Air Pollution Emissions
h = Costs
i = Reports
j = Meteorological Monitoring, Data
k = Maintenance

# Physical/Chemical Data

| COMPANY | PROGRAM | C | D | E | F | G |
|---|---|---|---|---|---|---|
| Arthur D. Little | Chemest | | | | f | |
| Chem Multi Base | Chem Multi Base | | | | f | |
| ERM Computer Services | Enflex Info | | | e | | |
| Gulf Publishing Company | Chemcalc 1: Separations Calculations | | | | f | |
| Gulf Publishing Company | Chemcalc 7: Chemical Compound Database | | | | f | |
| Gulf Publishing Company | Thermosim 1: Equi | | | | | g |
| P S Lowell & Co. | Aqueous Chemical & ical Properties | | | | f | |
| Software Systems Corp. | Gasprops | | d | | | |
| Software Systems Corp. | Hycarb | c | | | | |

c = Hydrocarbons
d = Gas
e = Regulations
f = Chemical
g = Thermodynamic

images or retrieve specific images. Files can be sorted using dBase sorting capability. Harmon Engineering Associates, Inc., 1550 Pumphrey Ave., Auburn, AL 36830. (404) 469-3077.

**AIR-1**—*Air Toxics Software.*
AIR-1 offers an integrated system of database management, impact assessment techniques and reporting functions to organize, update and store air toxics emission data, estimate ambient impacts using dispersion modeling techniques, evaluate significance of ambient impacts based on established criteria and unit risk factors, evaluate alternative air toxics management strategies, report emissions in standard formats such as SARA 313, and communicate impacts to the public. The program is designed to maintain information on up to 2000 sources and 100 pollutants at one or more industrial complexes. It provides a "what-if" module for analysis of new regulations, process modifications, control alternatives, and/or facility expansion plans. AIR-1 runs on the Digital VAX family of micro, mini, and mainframe computers. Also available for Apple Macintosh II systems. Galson Technical Services, Inc., 6601 Kirkville Road, East Syracuse, NY 13057. (315) 432-0506.

**AUDIT MASTER, Version 2.0**—*Environmental Auditing System.*
This is software to aid in performing environmental audits for your operations or facilities. It will aid in the tracking of regulatory information for the audit, provide reporting options for documenting the audits and resulting corrective action plan. There are eight audit modules available: Water Pollution/Water Quality; Emergency Planning and Community Right-to-Know; PCBs; Pretreatment; Storage Tanks; Solid and Hazardous Wastes; Spill Prevention and Control; Air Pollution. Each module consists of the audit control program and a utility function used to report the results of the audit. The audit session asks a series of questions designed to construct the path that the audit will follow. Aiding in the completing of an audit are the Guidelines for Auditors (a section of tips and suggestions for taking better advantages of audits); Legal Framework (an overview of laws and regulations in the selected regulatory area); Citation Key (abbreviation of the laws and regulations for the facility); Glossary (legal definitions); Requirements Guide (plain-language summary of the laws and regulations). Ten megabytes of hard disk space is recommended. Utilicom, Inc., 7 Tobey Park Village, Pittsford, NY 14534. (716) 381-8710.

**AUTO-MSDS SYSTEM**—*Data Entry, Printing, and Editing of MSDSs.*
Compliance with OSHA Hazard Communication Standard 29 CFR 1910.1200, contains NFPA ratings, edits existing MSDSs for updating records, printing capability, identifies products which require customer notification under Section 313 regulations. Corbus, Inc., 204-C Line Road, Kennett Square, PA 19348. (215) 444-5691.

**BREEZE AIR**—*Dispersion Models for Air Permitting.*
Models available include ISCST, ISCLT, COMPLEX1, RTDM, SCREEN, PTPLU2, and 12 other widely used UNAMAP models. The BREEZE system is menu-driven. The user manual supplements the EPA user's guide. Meteorological data for use with these models is also available. Trinity Consultants, Inc., 12801 N. Central Expressway, Suite 1200, Dallas, TX 75243. (214) 385-9203.

**BREEZE HAZ**—*Dispersion Models for Toxic Gas Releases.*
Models available include SPILLS, TRPUF, INPUFF, and DEGADIS. These programs are useful for impact analysis of potential releases and preparing emergency response plans. Typical uses are liquid spills, stack emissions with steady or varying emission rates, "puff" gaseous releases, catastrophic tank ruptures, leaks from valves, and releases of gases stored as liquids. Because the appropriate model choice can be difficult, BREEZE HAZ CONSULTANT helps the user select the most suitable model for a specific use. For example, it can determine when a release of ammonia from a stack should be treated as a gaseous release and when it should be treated as a dense gas release. Trinity Consultants, Inc., 12801 N. Central Expressway, Suite 1200, Dallas, TX 75243. (214) 385-9203.

**BREEZE WAY**—*Air Quality and Noise Analysis for Roadway Traffic.*
Models include CALINE3, CALINE4, MOBILE4, APRAC3, HIWAY2, and PAL2 for air quality. STAMINA/CPTIMA for noise modeling. Trinity Consultants, Inc., 12801 N. Central Expressway, Suite 1200, Dallas, TX 75243. (214) 385-9203.

**CHEMTOX DATABASE**—*Database of Regulated Chemicals.*
Contains more than 6000 hazardous substances with over 40,000 synonyms. Datasheets can be generated on each. Indexed by name, CAS number, RTECS number, DOT ID number, STCC number, RCRA ID number, and chemical formula. Allows inventory or additional items to be added. The Chemtox System, 7121 Cross-Roads Boulevard, PO Box 1848, Brentwood, TN 37024. (615) 373-5040.

**CHRIS PLUS**—*SARA Compliance Software.*
This software stores complete MSDS data and prints out MSDS forms as necessary for Tier I and II reports. It will print lists of toxic substances for submission to public safety officials. Inventory can be tracked by location and quantities on hand. The program can be used for document training for Hazard Communication Standard as well as track accident incident information. It produces more than 35 reports and can print hazardous chemical label information. The program sorts toxic chemicals by EPA classifications, NFPA codes, chemical components, or suppliers. It also has a tickler advising when new training or labeling is required. HRD Software, 22 Amherst Road, Amherst, MA 01002. (413) 253-2801.

**CHEMMIX**—*Hazardous Waste Reaction/ Incompatibility Software.*

# Fluids: Air, Water

| COMPANY | PROGRAM | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| AAA | TriFlex | c | | | | | | | | |
| AAA | TriVessel | | d | | | | | | | |
| Cecomp | Micro Hardy Cross | c | | e | f | g | | | | k |
| Gordon S. Buck | CPPAC | | | e | | | | | | |
| Gordon S. Buck | Impeller | | | e | | | | | | |
| Gulf Publishing Company | Chemcalc 8: Centrifugal Pump | | | e | | | | | | |
| Gulf Publishing Company | Chemcalc 4: General Fluid Flow | | | | | | | | | |
| Gulf Publishing Company | Pipecalc | | | | | | | | | |
| Gulf Publishing Company | Chemcalc 13: Fractionation Design | | | | | | | | | |
| Gulf Publishing Company | Instrucalc | | | | | g | | | | |
| Kenneth A. Wilde | Adsorb | | | | | | | | | k |
| MST Software | Orifice | | | | | | h | | | |
| MTS Software | Flocurve | | | | | | | | | |
| MTS Software | Relief | | | | | g | | | | |
| MTS Software | Valve | | | | | g | | | | |
| MTS Software | Gas | | | | | | | | | |
| MTS Software | Flocurve | | | | | | | | | |
| MTS Software | Plate | | | | | | | | | |
| MTS Software | Zee | | | | f | | | | | |
| P S Lowell & Co | Brine Concentrator Simulator | | | | | | | | | k |
| Software Systems Corp. | Gasflo | | | e | f | | | | | |
| Software Systems Corp. | Fluidflo | | | e | f | | | | | |
| STJ Software International | Cv Sizing | | | | | g | | | | |
| Techdata | Antoine | | | | f | | | | | |
| Techdata | Compress | | d | | | | | | | |
| Techdata | Micro Hardy Cross | | | | f | | | | | |
| Techdata | Naripump | | | | | | | | | |
| Techdata | Orifice | | | | | | h | | | |
| Techdata | Pipedp | c | | | | | | | | |
| Techdata | PipePlus | c | | | | | | | | |
| Techdata | Pig | | | | | | | | | |
| Techdata | Pump | | | e | | | | | | |
| Technical Research Services | ASME Code Vessel Design | | d | | | | | | | |
| TECS Software | Tlines | | | | | | | | | |
| TECS Software | Separate | | | | | | | | | k |
| TECS Software | Velref | | | | | | | | | |
| TECS Software | Distil2 | | | | | | | i | | |
| TECS Software | SWS1 | | | | | | | | | k |
| TECS Software | Distil-R | | | | | | | i | | |
| TECS Software | Orifice | | | | | | h | | | |
| TECS Software | Distil-S | | | | | | | i | | |
| TECS Software | H-Clone | | | | | | | | | k |
| TECS Software | Stkpack | | | | | | | | | |
| TECS Software | Cspack | | | | | | | | j | |
| TECS Software | Ppack | | | | | | | | | |
| TECS Software | Molsieve | | | | | | | | | k |
| TECS Software | Sep 3 | | | | | | | | | k |
| TECS Software | Valtrayg | | | | | | | | | k |
| TECS Software | Packtwr | | | | | | | | | |
| TECS Software | Relief | | | | | g | | | | |
| Thermal Analysis Systems Co. | Piping Pressure Drop | c | | | | | | | | |
| Thermal Analysis Systems Co. | Pipe Network | | | | | | | | | |
| Thermal Analysis Systems Co. | Shell and Tube Exchangers | | | | | | | | | k |

c = Piping Analysis
d = Pressure Vessel
e = Pump
f = Flow, Pressure
g = Valve
h = Orifice
i = Distillation
j = Flash Calculations
k = Equipment Design

This chemical reaction software identifies reactions or incompatibilities between chemicals. Reactions include fire, explosion, heat generation, toxic gas generation, flammable gas generation, solubilization of toxic substances, and asphyxiating, non-flammable gas generation. There are over 1700 chemicals in the database with a built-in generator for any other chemical. Over 3 million reactions or incompatibilities are identified. The program is useful in the event of spills, management of inventory, transportation of hazardous wastes, water damage reactions or incompatibilities, contamination of feed stock, compatibility determinations of warehouse stock or inventory, safety of fire department or emergency response personnel. Also, it is very useful in notifying fire departments/emergency response units of shipments of hazardous chemicals through towns, areas, etc. Four types of reports are available including a "Water Only Quick" report (identifies the type of reactions that can occur when water is applied), a "Quick" report (identifies all the combinations of chemicals and types of reactions), a "Water Only Complete" report (provides additional descriptive information about reactions that could occur when the chemicals or waste is mixed with water), and a "Complete" report (provides additional descriptive information about reactions that could occur when all the chemicals or wastes are mixed with each other). Hard disk drive required. Macintosh version available. Environmental Software & Systems, Inc., 802 Brittany, Suite 485, Bowling Green, OH 43402. (419) 353-8540.

**CHEMMIX FD/ER**—*Fire Department/Emergency Response Version of CHEMMIX.*
A "use-only" version of CHEMMIX which has no database of chemicals. It uses files of chemicals transferred from any company which has a full version of CHEMMIX, allowing the fire department/emergency response team to enter only the company name or ID for instant access to the reactions or incompatibilities which might face them. It is useful in the event of spills, management of inventory, transportation of hazardous wastes, water damage reactions or incompatibilities, contamination of feed stock, compatibility determinations of warehouse stock or inventory, safety of fire department or emergency response personnel. Also, it is very useful in notifying fire departments/emergency response units of shipments of hazardous chemicals through towns, areas, etc. Four types of reports are available including a "Water Only Quick" report (identifies the type of reactions that can occur when water is applied), a "Quick" report (identifies all the combinations of chemicals and types of reactions), a "Water Only Complete" report (provides additional descriptive information about reactions that could occur when the chemicals or waste is mixed with water), and a "Complete" report (provides additional descriptive information about reactions that could occur when all the chemicals or wastes are mixed with each other). Hard disk drive required. Macintosh version available. Environmental Software & Systems, Inc., 802 Brittany, Suite 485, Bowling Green, OH 43402. (419) 353-8540.

**CHEMREG**—*Environmental Regulatory Compliance Support System.*
This program is designed to assist in determining regulatory applicability, achieving and maintaining compliance, and preparing required reports. The system is supplied with one database of compliance information for regulated chemicals and a second database for facility-specific chemical product information, allowing retrieval of information in virtually any manner and combination. Requires MS-DOS 3.1 or higher. Techna Corp., 44808 Helm Street, Plymouth, MI 48170. (313) 454-1100.

**CHRIS**—*Chemical Database.*
Product inventory information database containing date arrived, number and type of containers, where and how much is stored. It has a built-in database of 600 chemicals including names, synonyms, CAS. The program will document Hazard Communications training. The software is similar to CHRIS PLUS but with reduced capabilities (no Tier I or II reports or complete MSDS). HRD Software, 22 Amherst Road, Amherst, MA 01002. (413) 253-2801.

**EIS**—*Emergency Information Systems.*
The EIS system organizes emergency information through the use of modules: EIS/MAP—the EIS mapping version, displays the geographic relationship between hazards, disasters resulting from those hazards and the resources available to aid or protect. Maps "zoom" to a more detailed map. EIS/C—the EIS chemical version, addresses the threat of toxic chemical accidents. It combines all the required data about chemical sites, chemical inventories, risks, hazards, resources, and emergency plans to allow effective emergency response information dissemination. EIS/EMD—the EIS emergency map drawing module, allows the user to draw a more detailed map for specific emergency response needs. EIS/Command Center Network—allows any number of computers to be linked together, all sharing the same information and maps. Research Alternatives, Inc., Suite 1, 966 Hungerford Drive, Rockville, MD 20850. (301) 424-2803.

**EPA UNAMAP MODELS**—*Air Pollution Dispersion Models.*
Dispersion models for stationary sources including CDM 2.0, COMPLEX-I, CRSTER, ISCLT, ISCST, MPTER, PAL-2, RAM, RAMMET, TCM2B, TEM8B, and VALLEY are part of this software. The ISCST is enhanced with the running average capability from within the program. A special screening version of ISCST is also available. The programs are available with graphics, the interactive data entry system (IDES), and the Interactive Runtime System. Jim Clary & Associates, Inc., 2121 Spring Creek Parkway, Suite 224, Plano, TX 75023. (214) 618-6737.

**ENVIRONMENTAL/ENGINEERING SERIES**—
Includes *Process Adviser/NPDES Reporter, Industrial Pretreatment Program Manager,* and *Ground Water Monitor.*
The Process Adviser/NPDES Reporter monitors each

# Energy Analysis

| Company | Program | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|
| Ayres Sowell Associates | Psychart | c | | | | | | | |
| Engineering Applications Specialists | Chart/PC | c | | | | | | | |
| Engineering Applications Specialists | Energy/PC | c | | | | | | | |
| Engineering Applications Specialists | Storage/PC | c | | | | | | | |
| Engineering Applications Specialists | Loadcalc/PC | c | | | | | | | |
| Gulf Publishing Company | Chemcalc 3: Convective Heat Transfer | | d | | | | | | |
| Gulf Publishing Company | Chemcalc 5: Heat Exchanger Network | | d | | | | | | |
| Gulf Publishing Company | Chemcalc 12: Flare Network Analysis | | | | | | | | j |
| Gulf Publishing Company | Chemcalc 6: Heat Exchanger Design | | d | | | | | | |
| Joseph Barnes | Design for Profit Package | c | d | | f | | | | |
| Michigan Technological University | Boiler Efficiency | | | | f | | | | |
| Software Systems Corp. | Gasrad | | d | | | | | | |
| Software Systems Corp. | Cogen | | | | | g | | | |
| Software Systems Corp. | Combustion | | | | f | | | | |
| Software Systems Corp. | Steamsub | | | | | | | | |
| Software Systems Corp. | Refrig | | | | | | | i | |
| Software Systems Corp. | Pumpcalc | | | e | | | | | |
| Software Systems Corp. | Heatflo | | d | | | | | | |
| Software Systems Corp. | Steamcalc | | d | | | | | | |
| Techdata | Tankq | | d | | | | | | |
| Techdata | Gas Combustion | | | | f | | | | |
| Techdata | Compressor | | | e | | | | | |
| Techdata | Pipeq | | d | | | | | | |
| Techdata | Flare | | | | | | | | j |
| Techdata | Steam | | | | | | h | | |
| Techdata | Tourq | | | | | | | | |
| TECS Software | Aircool2 | | d | | | | | | |
| TECS Software | Compump | | | e | | | | | |
| TECS Software | Flame | | | | f | | | | |
| TECS Software | Boil-Eff | | | | | | | | |
| Thermal Analysis Systems Co. | Steam Turbine | | | | | | h | | |
| Thermal Analysis Systems Co. | Combustion Analysis | | | | f | | | | |
| Thermal Analysis Systems Co. | Steam Surface Condenser | | d | | | | | | |
| Thermal Analysis Systems Co. | Cooling Tower | | d | | | | | | |
| Thermal Analysis Systems Co. | Steam Heater | | d | | | | | | |
| Thermal Analysis Systems Co. | Energy Analyst | c | d | e | f | g | h | | |

c = HVAC
d = Heat Transfer
e = Pump, Compressor Analysis
f = Boilers/Combustion
g = Thermodynamics
h = Steam
i = Refrigerants
j = Flare

step of the wastewater treatment process. The Industrial Pretreatment Program Manager monitors industries discharging into publicly owned treatment works. It also tracks the permit process, computes violations, and allows users to establish their own milestones. Ground Water Monitor assists in the administration of the large quantities of data acquired in ground water and soil monitoring programs. Requires 640 K, one 1.2 megabyte floppy drive, 30 megabyte hard disk drive, math co-processor, DOS 3.1 or higher. J&H Software, Inc., 2000 West Central Avenue, Toledo, OH 43606. (419) 473-9611.

**FLOW GEMINI**—*Environmental Information System.*
Available in modules as well as an integrated comprehensive system, this is a powerhouse of a program. *Chemical Tracking Module*—substances may be logged into the system when deliveries are received. Every subsequent movement and use of a substance is accommodated in the database—inventory, warehousing, production, customer shipment, releases and waste disposal—allowing for cradle to grave tracking and mass balance calculations. *SARA Module*—includes Form R and Right-to Know reporting via Tier I and II. Facsimiles of the reports are standard outputs. *Waste Management Module*—On and off-site waste data and activities are managed and reported. Includes a complete description of the waste itself, container and shipping details, all treatment steps, waste minimization activities and effect and full manifesting information. Several standard reports are produced. *Permit Module*—manages detailed permit information for all sources and facilitates the renewal process by providing tickler reports based on user-specified dates and schedules. *Monitoring Module*—management and reporting of all data associated with air, groundwater, surface water, tanks and soil monitoring, as well as scheduling of monitoring activities. Provides for collection and preparation of samples, their chain of custody and all results. Detailed and summary reports record activities and findings and identify any problems. Available for VAX computers, as well as IBM mainframes under VM/CMS Operating System. General Research Corporation, 7655 Old Springhouse Road, McLean, VA 22101. (703) 893-5900.

**FORM R**—*SARA Title III Toxic Chemical Release Reporting.*
Produces printed facsimile and magnetic media Form R, both EPA approved for direct submission. The regulated database contains Section 313 toxic chemicals and categories. The chemical category locator function helps determine 313 category chemicals. It qualifies the special conditions under which certain chemicals in the inventory are reportable or exempted. The program tabulates chemical usage and release inventory, and produces worksheets for audit and future reference. AV Systems, Inc., 924 Woodlawn St., Ann Arbor, MI 48194. (313) 662-0355.

**GROUNDWATER/DMS,** *Version 1.10—Groundwater Data Management Software.*
The software is designed for tracking, scheduling, analyzing and preparing reports on groundwater quality data. It allows users to describe monitoring wells, manage field data, schedule lab tests and enter, validate, and analyze lab and field results. Enhancements include multiple data directory capability, predefined entry groups with detection limits, and well groups. It requires AT or PS/2 Model 50 or above, 640K, DOS 3.3 and a hard disk drive. CSW Data Systems, Inc., One Overocker Road, Poughkeepsie, NY 12603. (914) 454-4026.

**HAZARD**—*Labeling, Manifesting, Tracking, and Document Management Software.*
This is hazardous waste management software comprised of the following sections: *Manifest Management*—manifest fields are checked for validity wherever possible (DOT waste codes, EPA ID numbers, dates, container types, etc). Template manifests may be defined eliminating the need for re-creating commonly used information. *Manifest Tracking*—the system allows a facility to enter the manifest ship date, the date received back from a disposal site, the disposal site where the waste was actually disposed of, and the cost. *Waste Tag Maintenance*—developed to track both hazardous material and manufacturing by-products. Includes information such as location/department that generated the waste, the quantity of waste, the type of waste, the composition of the waste, the person delivering the waste, the date the waste was generated, the cost of disposing the waste, and the manifest number on which the waste was delivered. This can be used to monitor your waste minimization program. *Operation Log Maintenance*—tracks the processing and movement of both hazardous material and manufacturing byproducts. Can determine how much of each material by component was generated for Tier II reports and Form "R", build basic material/waste profiles, and respond to Community Right to Know requirements. *Standard Reports*—18 standard reports are available which are developed by the above areas. *Facility Management*—the system can support up to 2598 "satellite facilities" in addition to the primary waste generator facility. A 10 Meg hard-drive is recommended. North American Software, PO Box 3309, Tustin, CA 92680. (714) 544-9955.

**HAZARDOUS WASTE TRACKER**—*Hazardous Waste Recordkeeping.*
HWT stores and generates the information that is needed in order to complete the required EPA SARA Title III Section 313 Form R Report as well as the Uniform Hazardous Waste Manifest Report. Information includes toxic wastes generated (quantity and type), destination of toxic wastes generated, how disposed (disposal, type, amount where, and when), on-site inventory, accidental release information (how much, where, and when), tracks transporter and TSD facility information, tracks wastes as a by-product of a manufacturing process, and includes a database of 1700 toxic chemicals. HRD Software, 22 Amherst Road, Amherst, MA 01002. (413) 253-2801.

**INDUSTRIAL HEALTH 2000**—*Industrial Health Monitoring Software.*
This software system manages environmental hazard

# Water

| COMPANY | PROGRAM | C | D | E | F | G |
|---|---|---|---|---|---|---|
| CSW Data Systems | Groundwater/DMS 1.10 | c | | | f | |
| J&H Software | Well System Manager | | | | f | |
| J&H Software | Ground Water Monitor | c | | | | |
| J&H Software | Distribution System Manager | | | | | g |
| Slotta Engineering Associates | PULSE | | | | | |
| Slotta Engineering Associates | RECHARGE | | | | | |
| Slotta Engineering Associates | DISTRIB | c | | | | |
| Slotta Engineering Associates | DISTRO | c | | | | |
| Techdata | Water | | d | | | |
| Techdata | Demin | | d | | | |
| Thermal Analysis Systems Co. | Gravity Drains | | d | | | |
| U.S.West Knowledge Engineering | Hydropeak | | | e | | |

c = Groundwater Movement
d = Calculations
e = River Data
f = Groundwater Management
g = Distribution

# Cost

| COMPANY | PROGRAM | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| Bounicore-Cashman | APCECOST | | | | | g | |
| CWC-HDR | Water-CoSt | | | | | | h |
| General Electric | Financial Analysis of Waste Alternatives | | | | | | |
| Gulf Publishing Company | Page's Cost Estimator | c | | | | | |
| TECS Software | Ecost | | d | | | | |
| Thermal Analysis Systems Co. | Insulation Economics | | | | | | |
| Thermal Analysis Systems Co. | Cogeneration Economics | | | | f | | |

c = Project Costs
d = Equipment Costs
e = Pipes, Flat Surfaces
f = Cogeneration
g = Air
h = Wastewater
i = Financial Template

# HAZARDOUS MATERIALS

| COMPANY | PROGRAM | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | AA | AB | AC | AD | AE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Advanced Systems Laboratories | Computerized Right to Know System | | | | | | | | | | | | | | | | r | s | t | | | | x | | | | | | | |
| Advanced Systems Laboratories | Computerized Emergency Notification | | | | | | | | | | | | | | | q | | | | | | | | | | | | | | |
| Advanced Systems Laboratories | Computerized Hazard Compliance Series | | | | | | | | | | | | | o | | q | r | s | | | | w | | | | | | | | |
| Advanced Systems Laboratories | Computerized Hazardous Inventory System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advanced Systems Laboratories | Computerized Emergency Response System | | | | | | | | | | | | | | | q | | | | | | | | | | | | | | |
| Advanced Systems Laboratories | Computerized Toxic Chemical Release | | | | | | | | | | | | | | | | | | | u | | | | | | | | | | |
| Advanced Systems Laboratories | Computerized MSDS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advanced Systems Laboratories | Compliance Engine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AquaTech | Chemdata | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AV Systems | Material Inventory Report System | | | | | | | | | | | | n | | | | r | s | t | | | w | | | | aa | | | | |
| AV Systems | MSDS + | | | | | | | | | | | | n | o | | q | | s | | | | w | | y | z | | | ac | | |
| AV Systems | Form R | | | | | | | | | | | | | | | | | s | | u | | w | | | | | | | | |
| Battelle Memorial Institute | Chemtrak | | | | | | h | | | | | | | | | | | | | | | | x | | | | | | | |
| Beckman Instruments | EWDBS, DBTREND, CAL | | | | | | h | | | | | | | | | | | | | | | | x | | | | | | | |
| Bureau of Dangerous Goods, Ltd | HMD & PVS | | | | | | h | | | | | | | | | | | | | | | | | | | | | | | |
| Chemical Information Systems, Inc | Chemical Information System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chemtox System | MSDS Access | | | e | | | | i | | | | | n | o | | | | s | t | | | | | y | z | | | | | |
| Chemtox System | SARA Reporter | | | | | | | | | | | m | | | | | | | | u | | | | | | | | | | |
| Chemtox System | ChemTox Database | | | | | | | | | | | | | | | q | | | t | | | w | x | | z | aa | | | | |
| Chemtox System | Hazwaste Manifest Tracker | | | | | | h | i | | | | | | | p | | | | | | | | | | | | | | | |
| Complete Business Solutions | SARA-IMS | | | | | | | | | | | | n | | | | r | s | t | | | | | | | | | | | |
| Corbus | Auto-MSDS System | | | | | | | | | | | | n | o | | | | s | | | | w | | | | | | | | |
| Corbus | MIDAS | | | | | | | | | | | | n | o | | | | s | t | | | w | | | | | | | | |
| Corbus | TERMS | | | | | | | | | | | | | | | | | | | | | w | | | | aa | | | | |
| CSW Data Systems | Groundwater/DMS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Environmental Communications Consltg | Chem-Ply | c | | | | | | | | | | | | | | | | | | | | w | | y | z | aa | | | | |
| Environmental Software & Systems | CHEMMIX—Chemical Reporting | | | | | | | | | | | | | | p | q | | | | | | w | x | | | | | | d | |
| Environmental Software & Systems | CHEMMIX FD/ER | | | | | | | | | | | | | | p | q | | | | | | | x | | | | | | | |
| ERM Computer Services | Enflex 313 | | | | | | | | | | | | | | | q | r | | | | | w | | | | | | | | |
| ERM Computer Services | Enflex Info | | | | | | | | | | | | | | | | | | | | | | | | | aa | | | | |
| FIRSTsystem | microCHRIS | | | | | | | | | | | | | | n | | | | | | | w | | | | | | | | |
| FIRSTsystem | microOHM/TADS | | | | | | | | | | | | | | | | | | | | | w | | | | | | | | |
| Fisher Scientific | TRACE | | | | | | | | | | | | | | | | | s | | | | | x | | | | | | | |
| General Sciences Corp | RiskPro | | | | | | | | | k | | | | | | q | | | | | | w | | | | | | | | |
| Harmon Engineering Associates | AIMS | | | | f | | | | | | | | | | | | | | | | | w | | | | | | | | |
| HazMat Control Systems | Hazwaste | | | | | | | | | | | | | | | | | | | | | w | | | | | | | | |
| HazMat Control Systems | MSDSFile | | | | | | | | | | | | n | | | | | | | | | | | | | | | | | |
| HazMat Control Systems | CiData | | | | | | | | | | | | | | | | | | | | | w | | | | aa | | | | |
| HazMat Control Systems | Know-It—All | | | | | | | | | | | | | | | | r | s | t | | | w | | | | | | | | |
| HazMat Control Systems | HazMat Regulatory Snapshot | | | | | | | | | | | | | | | q | | s | t | u | | w | x | | | aa | | | | |
| Hazox Corporation | Findex | | | | | | | | | | | | | o | | | | | | | | | | | | | | | | |
| Hazox Corporation | The Uniform Manifest Tracker | | | | | | h | | | | | | | o | | | | | | | | | | | | | | | | |
| Hazox Corporation | Label Maker | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hazox Corporation | Toxic Alert | | | | | | | | | | | | | e | | | | | | | | | | | | | | | | |
| Hazox Corporation | Training Ledger | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hazox Corporation | SARA Chemical Inventory System | | | | | | | | | | | | | | | | r | s | t | | | | x | | | | | | | |
| Hazox Corporation | MSDS Dispatch | | | | | | | | | | | | n | o | | | | | | | | | x | | | | | | | |
| Hazox Corporation | Facility Emergency Data (FED) | | | | | | | | | | | | | | | q | | | | | | | | | | | | | | |
| Hazox Corporation | LEPC | | | | | | | | | | | | n | o | | q | r | | i | | | | | | | | | | | |
| Hazox Corporation | Medical Waste Manager | | | | | | | | | | | | | | p | | | | | | | w | x | | | | | | | |
| HRD Software | Chris Plus | | | e | | | | | | | | | n | o | | q | r | | | | | | | y | | | | ac | | |
| HRD Software | Chris | | | e | | | | i | | | | | | | | | | | | | | w | | y | | | | | | |
| HRD Software | Hazardous Waste Tracker | | | e | | | | | | | | | | | p | q | | | | u | | w | | | | | | | | |

| | | |

and workers' occupational health information and exposure records for compliance with OSHA's Hazard Communications Standard and EPA's Right-to-Know and SARA requirements. The system provides MSDS management, environmental monitoring and sampling, substance inventory, safety training and scheduling, employee exposure monitoring, substance testing, physical scheduling and employee health record-keeping. A multilingual function enables workers to access MSDS information in their native language. Requires IBM System AS/400 or IBM System/38. Software 2000, One Park Center, Independence Park, Hyannis, MA 02601. (508) 778-2000.

**INFRASTRUCTURE/MANAGEMENT SERIES**—includes *Collection System Manager* and *Distribution System Manager.*
The Collection System Manager maintains detailed historical information on sewers, manholes, holding basins, regulators, and more. It will monitor service repairs and inspections, and allow the user to prepare and schedule maintenance on all areas of wastewater collection. The Distribution System Manager schedules and tracks information on all meters, valves, hydrants, pipes, service connections, backflow prevention devices, and more. It provides the user with the ability to implement a backflow prevention program. A complete history of all inspections, flow tests and repairs are recorded. Requires 640 K, one 1.2 megabyte floppy drive, 30 megabyte hard drive, math co-processor, DOS 3.1 or higher. J&H Software, Inc., 2000 West Central Avenue, Toledo, OH 43606. (419) 473-9611.

**MAINTENANCE/MANAGEMENT SERIES**—includes *Maintenance Manager/Equipment, Maintenance Manager/Instrumentation,* and *Well System Manager.*
This program series is designed to schedule, monitor, and maintain historical records of routine and corrective maintenance work orders and inspections. Key features include allowing the users to set their own maintenance intervals, keeping track of vital information on all equipment, specifying location of equipment, and identifying critical equipment in the operation. Additional features include detailed information on manufacturers and suppliers and cross reference on equipment. Preventive and corrective maintenance work orders are prepared, reports that monitor labor and parts expenditures are generated, and overdue work orders and parts used in the maintenance process are tracked. Requires 640 K, one 1.2 megabyte floppy drive, 30 megabyte hard disk drive, math co-processor, DOS 3.1 or higher. J&H Software, Inc., 2000 West Central Avenue, Toledo, OH 43606. (419) 473-9611.

**MIDAS**—*MSDS Information Data System.*
MIDAS standardizes all suppliers' MSDSs, assists with OSHA compliance, organizes current and inactive MSDSs, allows access to critical information during emergencies, enables notification to employees concerning chemicals they work with, allows identification of chemicals which require special handling, generates form letter to notify supplier for updated MSDS. Corbus, Inc., 204-C Line Road, Kennett Square, PA 19348. (215) 444-5691.

**MINITAB 7.1**—*Statistical Software.*
In addition to a complete package of statistical analysis calculations, Release 7.1 offers 11 statistical process control charts that provide the capability to monitor and control process quality and identify problems. It also offers the general linear model to perform analysis of variance for unbalanced designs, allowing researchers to analyze experimental results where the number of observations varies by factor level, and provides information needed when quality improvement actions are required. In addition to PC use, it is also available on DEC VAX and Prime computers running PRIMOS. Minitab Inc., 3081 Enterprise Drive, State College, PA 16801. (814) 238-3280.

**MIRS**—*Material Inventory Report System.*
MIRS is a software package to track hazardous and toxic chemical information and comply with EPA SARA Title III and selected local right-to-know legislation. It covers emergency release notification, MSDS chemical list, Tier inventory reports, toxic chemical list. The program includes a regulated chemical database of all Title III chemicals with chemical data and legislative status. The software also contains chemical product or component data tracking. It searches by CAS, full or partial chemical or material name. Also, the software assists with unit conversion into EPA required pounds. MIRS generates reports for internal management of facility's chemical inventory. AV Systems, Inc., 924 Woodlawn St., Ann Arbor, MI 48194. (313) 662-0355.

**MOBILE SOURCE MODELS**—*Transportation Programs.*
Models include CALINE3, CALINE4, MOBILE3, HIWAY-2, PAL-2, TEXIN-2, and the STAMINA/OPTIMA are included in this package. The programs are available with the interactive data entry system (IDES) and the Interactive Runtime system. Jim Clary & Associates, Inc., 2121 Spring Creek Parkway, Suite 224, Plano, TX 75023. (214) 618-6737.

**MSDS ACCESS**—*Database of In-house Material Safety Data Sheets and Employee Records.*
MSDS Access organizes in-house MSDS; maintains employee training and medical records; chemical inventories; generates labels; tracks hazardous waste containers and manifests and provides reports required by SARA Title III, OSHA, EPA, Safe Drinking Water Act, WHMIS, CERCLA, RCRA, DOT. The Chemtox System, 7121 CrossRoads Boulevard, PO Box 1848, Brentwood, TN 37024. (615) 373-5040.

**MSDS PLUS**—*MSDS Software.*
This software prints complete or sections of MSDS, index of MSDS, sorts products by chemical components or hazard classifications (SARA codes, NFPA codes), searches a database of over 1700 toxic chemical by CAS, chemical name, or synonym, sorts products by user defined group codes or products by suppliers. HRD Software, 22 Amherst Road, Amherst, MA 01002. (413) 253-2801.

# Comprehensive Environmental Data Management

| Company | Program | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | AA | AB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Azimuth | BeSafe | c | | | | | | | | k | | m | | | | | | | | u | | w | x | y | z | | |
| DuPont | 313 Advisor | | | | | | | | | k | | m | | | | | | | | u | | | | | | | |
| DuPont | Env./Health Screening | | | | | | | | | k | | | | | | | | | | | | | | | | | |
| DuPont | Release Reporting | | | | | | | | | | | | | | | q | | | | | v | | | | | | |
| Engineering Science | Wastetrax | | d | | | g | | | j | | | | | | | | | | | | | | | | | | |
| ERM Computer Services | Enflex Data | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | | t | u | | | x | | | | |
| EnviroBase | 313 Plus | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z | aa | ab |
| Environmental Information Systems | The Environmental Manager | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z | aa | ab |
| Flow General | Flow Gemini | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z | aa | ab |
| Globe International | Spil-Com | | | | | | | | | | | | | | | q | | | | | | | | | | | |
| Hazox | Ecotrac | c | d | e | f | g | h | i | j | k | | m | | | p | q | | | t | u | v | w | x | y | z | aa | ab |
| Envirogenics | ChemMaster | | | | | | | | | k | | | | | | | r | s | t | | | w | | | | aa | |
| J.J. Keller & Assoc. | MSDS—PC | | | | | | | | | | | | | | | | | | | | | w | | | | | |
| Metcalf & Eddy | RODA | | | | | | | | | | | | | | | | | | | | | | x | | | | |
| NUS Corp. | EDBAS | | d | | | | | | | k | | | | | | | | | | | | | x | | | | |
| Quantum | Compliance Solutions | c | | | f | | | | | | | | | | | | | | | | | | | | | | |
| Utilicom | Audit Master 2.0 | c | d | e | f | | h | i | j | k | | | | | p | q | | | | | | | x | | | | ab |
| Versar | Environmental Compliance Mgmt System | c | | | | g | | | | | | | | | p | | | | | | v | | | | | | |

c = Modular
d = Permit Tracking
e = Source Inventory
f = TSCA (PCB, Asbestos, etc)
g = Groundwater Monitoring
h = Manifest Tracking
i = Drum Inventory
j = NPDES Reporting
k = Air Emissions
l = Underground Storage Tanks
m = Fugitive Emissions
n = MSDS
o = MSDS Status
p = HW Treatment/Disposal
q = Spill Incident, Response
r = SARA Tier I/II Reports
s = Chemical Inventory
t = Right to Know
u = Form R
v = Release Notification
w = Hazardous Material Database
x = Hazardous Material Management
y = Training
z = Health/Safety
aa = Labels
ab = Pretreatment

**MSDS + —*OSHA Hazard Communication Standard.***
This program maintains MSDS database in OSHA standard format. It generates reports on query criteria. Additionally, it tracks employee training, incident, exposure information on planned and completed courses, chemical accidents, and exposure by location. Warning label information can be organized into label format or summary report form. AV Systems, Inc., 924 Woodlawn St., Ann Arbor, MI 48194. (313) 662-0355.

**TEM—The Environmental Manager, Version 2.0—*Modular System for the Management of Environmental Information.***
TEM is available in a modular system as well as an integrated package. Modules include: *Environmental Audit*—stores audit procedures and checklists, either for your own notes or for others to follow, in addition to organizing checklists, record audit results, and print reports. *Operational Journal*—stores notes on any subject with a short checklist to indicate the subject matter with multi-facility capability. *Incident Reporting*—for documenting environmental incidents by recording date, facility, author, and area; also tracks completion of action items and warns of impending deadlines. *Permit Tracking*—stores permit information, tracking, requirements, and provides reports. *Air Emissions Inventory*—recordkeeping system including sources, emission data, control devices, daily emissions, and allows "what-if" type changes of source parameters. *Wastewater Monitoring*—recordkeeping and reporting system for wastewater sampling including discharge structure and flow information, laboratory data, calculates statistics and treatment method efficiencies. *Groundwater Monitoring*—maintains records, performs calculations, produces reports using sample data, well location, statistics, and various other parameters. *SARA*—uses information pulled from either existing data in the Air Emissions, Wastewater, MSDS and Chemical/Waste Inventory modules or data inputted directly, this module will calculate the necessary releases and print out the results. *MSDS Management*—manages information on manufacturers' MSDSs and prints the data in a standardized MSDS format; indexes on material code, CAS, synonyms, material name, etc; standard sections for the MSDS record follow conventional MSDS divisions. *Waste Manifesting*—checks data entry as each manifest is prepared to confirm that appropriate fields are complete and that units of measure, container codes, etc., are correct; maintains records of every shipment, tracks the return of the Generator's Manifest Copy, and prepares monthly and annual state waste reports. *Chemical/Waste Inventory*—tracks quantities of chemicals on hand, including mixtures, on a mass balance basis; tracks the source of the chemical as it arrives in inventory, as well as its destination when being removed from inventory. *Task Management*—provides a method to define the tasks to be performed; schedule tasks automatically; assign tasks to specific personnel; ensure that tasks are completed on schedule; monitor that tasks are performed correctly; verify that results meet expected criteria; issue variance reports on results which do not meet expected criteria. Ten megabyte hard disk drive, 640 K required. Versions available for VAX and mainframe applications. Environmental Information Systems, Inc., 2211 Denton Drive, PO Box 180206, Austin, TX 78718. (512) 835-0330.

**TERMS (The Environmental Regulation Management System) Version 2.0—*Chemical Reporting Software.***
TERMS offers a way to identify which chemicals at a site need to be reported and to prepare those reports required by federal, state, and local agencies. It fully accommodates both SARA Title III and OSHA HCS 29 CFR 1910-1200 regulations. The system's database contains a master list of 3800 reportable chemicals, including the SARA Section 302 extremely hazardous list, CERCLA hazardous substance list, SARA Section 313 toxic chemical list, and specific chemicals from the RCRA hazardous waste list Also included are OSHA designated chemicals list, Pennsylvania, Massachusetts, and Michigan state hazardous chemical lists. A modem tie-in allows for on-line help by being able to show how to do any of the reports. A ten megabyte hard drive is required. Corbus, Inc., 204-C Line Road, Kennett Square, PA 19348. (215) 444-5691.

**TOXIC GAS MODELS—*Toxic Air Pollution Dispersion Models.***
Models included in this package are: EPA INPUFF-2.0 and INSPILL, and the Shell SPILLS programs. The *EPA INPUFF* package includes the Interactive Runtime System, the Interactive Data Entry System, the *INPUFF-2.0* as well as time-averaging and graphics programs. *INSPILL* employed the methodologies found in the *Shell SPILLS* program to determine the emission rate from a liquid pool. A modified version of INPUFF-2.0 is then used to determine the ambient concentrations. Graphic output, including contours, concentration versus distance and time are available with both packages. Jim Clary & Associates, Inc., 2121 Spring Creek Parkway, Suite 224, Plano, TX 75023. (214) 618-6737.

**WASTE MANAGEMENT SYSTEM—*A System to Process, Bill, and Report on Customers and Waste Processed.***
This system will simultaneously process transactions across a multitude of scales with no restrictions hindering traffic flow. Multiple methods of vehicle processing are available including Option A—ONE-WAY WEIGH, Option B—TWO-WAY WEIGH, and Option C—SELECTIVE ONE-WAY WEIGH IN. In addition, it can facilitate a wide range of methods in which to collect money from the services. The Solid Waste module is comprised of two sections which provide the user with reports/analyses and file maintenance of data files. The system design accommodates the addition of terminals, scales, communication equipment as well as an increase in the number of operating facilities. The system is currently processing as few as 50 vehicles and as many as 1500 vehicles per day. The hardware used for this system is manufactured by AT&T. Communication is through the use of modems and/or multi-plexors which enable on-line access at real time. The system provides immediate processing of vehicles at the points of entry and

# Wastewater

| Company | Program | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cochrane | Tredat | c | | | | | | | | | |
| Cochrane | Asper | | d | | | | | | | | |
| Cochrane | Tremain | | | e | | | | | | | |
| Cochrane | Treport | c | | | f | | | | | | |
| Cochrane | Pretre | | | | f | | | | | | |
| CWC-HDR | Water-CoSt | | | | | g | | | | | |
| Datastream Systems | Datastream | c | | | | | | | | | |
| Datastream Systems | Operations Pac | c | | | | | | i | | | |
| EDI Technology Companies | Datastream | | | e | | | | | | | |
| Envirotech | CAMEO | | | e | | | h | | | | |
| J&H Software | Process Adviser/NPDES | c | | | | | h | i | | | |
| J&H Software | Industrial Pretreatment Manager | | | | f | | h | i | | | |
| J&H Software | Collection System Manager | c | | e | | | h | i | | | |
| Macola | Operator 10-Process Evaluation | | | | | | h | | | | |
| Macola | Operator 10-Process Monitoring | c | | | | | | i | | | |
| Macola | Operator 10-Industrial Pollutant | | | | | | | i | | | |
| Macola | Operator 10-Inventory/Maintenance | | | e | | | | | | | l |
| Macola | Operator 10-BOD Calculator | c | | | | | h | | | | |
| O'Brien & Gere Engineers | Sewer Maintenance System | | | e | | | | | | | |
| O'Brien & Gere Engineers | Pretreatment Info Systems | | | | f | | | | | | |
| Public Works Software | OASIS | c | | e | | | | i | j | | |
| Resource Conservation Services | Sludge Manager | | | | | | | | | k | |
| Resource Conservation Services | Sludge Regulator | | | | | | | | | k | |
| SoftCare Computer Services | Sludge Manager II | | | | | | | | | k | |
| Spica Systems | Pretreatment | | | | f | | | | | | |
| Systems/Services Engineering | Systems/Services | c | | | f | | h | i | j | | l |
| Techdata | Act | | d | | | | | | | | |
| Waid and Associates | Water Master | | d | | | | | | | | |
| WDMS Computer Services | Wastewater Data Management System | | | | f | | | | | | |

c = Wastewater Data Handling, Calculations
d = Activated Sludge
e = Wastewater Maintenance
f = Pretreatment
g = Cost
h = Process, Operation
i = Reporting
j = Storm Water
k = Sludge Management
l = Inventory

departure which allow for up-to-the-minute accounts of haulers. Solid Waste Technologies, Inc., 50 Mount Bethel Road, Warren, NJ 07060. (201) 757-4414.

**HAZWASTE TRACKER**—*Tracks Generated Wastes from Process to Disposal.*
This is software to track containers of generated wastes, their corresponding manifests, transporting and treatment, storage, and disposal facilities costs. Standardized and custom reports can be generated. The program can print the national uniform hazardous waste manifest form and two state forms of the user's choice. It even performs estimation of disposal costs. The Chemtox System, 7121 CrossRoads Boulevard, PO Box 1848, Brentwood, TN 37024. (615) 373-5040.

**SEEDPAK1**—*Environmental Laboratory Management Software.*
Core applications are designed to automate the laboratory management processes such as forecasting, pricing, log-in, data entry, sample scheduling and tracking, cost accounting, resource planning, invoicing, reporting, financial reporting. It requires 386 IBM or compatible, 4 megabytes of hard disk space, XENIX System V 386 (Version 2.2) or UNIX System V, Oracle RDBMS. Automated Compliance Systems, Inc., 245 Route 22 West, Bridgewater, NJ 08807. (201) 707-4100.

**SEEDPAK2**—*Data Acquisition System.*
This system automatically collects data from all devices capable of sending character data. It allows environmental labs to manage production processes and automate their data processes. The program can also electronically transmit data. It requires 386 IBM or compatible, 3 megabytes of hard disk space, XENIX System V 386 (Version 2.2) or UNIX System V, Oracle RDBMS. Automated Compliance Systems, Inc., 245 Route 22 West, Bridgewater, NJ 08807. (201) 707-4100.

**DATAPAK**—*Environmental Data Entry System.*
This is a manual data entry system which has double key entry, automated comparisons and loading. Reporting includes trend reports, performance reporting, and entry session statistics. It requires 386 IBM or compatible, 3 megabytes of hard disk space, XENIX System V 386 (Version 2.2) or UNIX System V, Oracle RDBMS. Automated Compliance Systems, Inc., 245 Route 22 West, Bridgewater, NJ 08807. (201) 707-4100.

**IBM Material Safety Data System**—*for MSDSs.*
This software is designed for managing Material Safety Data Sheets by the AS/400 computer. It allows data entry provided by suppliers through either a key entry or state-of-the-art scanning process (users can scan a complete sheet into storage using image processing software). Key fields and key words are entered to facilitate retrieval by accessing these words. It requires AS/400 Model 10 or higher, 630 meg DASD. IBM, F.S.D., PO Box 9023, Boulder, CO 80301. (303) 924-6300.

**OPERATOR 10 BOD CALCULATOR**—*Software/hardware System.*
This software interfaces with the YSI Model 59 Dissolved Oxygen Meter through an RS-232 which allows it to dump DO readings directly to any PC. When the final DO is taken, it automatically calculates the BOD for that sample. Macola, Inc., 333 East Center Street, PO Box 485, Marion, OH 43301. (614) 382-5999.

**HAZMIN**—*Hazardous Materials Data Management.*
HAZMIN is a system for complying with state and federal regulations pertaining to the safe use, fire protection, storage, shipment and disposal of hazardous materials. This includes the OSHA Hazard Communication Standard, State Employee and Community Right-to-Know, DOT and EPA regulations including SARA Title III. Logical Technology, Inc., 1422 W. Main Street, PO Box 3655, Peoria, IL 61414. (309) 677-3303.

**LOGITRAC**—*Cradle to Grave Tracking System.*
This program can be used both for chemical inventory and hazardous waste inventory and tracking. It handles transactions document receipt, storage, use and/or disposal of materials. Reports include inventory management, waste tracking, regulatory compliance, employee tracking, and specialized custom reports. Logical Technology, Inc., 1422 W. Main Street, PO Box 3655, Peoria, IL 61414. (309) 677-3303.

**MSDS SOLUTION**—*Manages MSDSs.*
This is software designed to manage information provided on Material Safety Data Sheets while making each MSDS available to employees. It meets OSHA Hazardous Communication Program and State Right-to-Know Compliance programs. Additionally, this program provides controlled access for the protection of data. It produces reports as needed. Logical Technology, Inc., 1422 W. Main Street, PO Box 3655, Peoria, IL 61414. (309) 677-3303.

**DIRECTORY**—*Tracking and Managing Reports or Information.*
This software assists the tracking and managing of reports or information while providing restrictive access via passwords. Uses include Written Hazard Communication Plan, Oil Spill Plan, Permit Tracking, Deadline Tracking, Personnel Opening Listings, Events Announcements, Safe Use Instructions, etc. Logical Technology, Inc., 1422 W. Main Street, PO Box 3655, Peoria, IL 61414. (309) 677-3303.

**CHEM-PLY**—*Modular Hazardous Waste Compliance Software.*
Modules included in this package are *Chemical Management* which provides hazard information on 2700 chemicals (50,000 synonyms), chemical information sheets, inventory of chemicals, and regulations that apply to any of the 2700 chemicals. *Regulation Management* searches federal registers and laws. An unabridged *Federal Register* text is provided. *Employee Management* retrieves all pertinent information for

each employee including training, medical, and chemical related information. *Location Management* identifies chemicals at specific locations, locates supervisors and emergency phone numbers. *Training Management* tracks and schedules required training; trainer outlines and handouts are provided. *Medical Management* tracks and schedules required employee medical examinations and testing. It requires 20 megabytes of hard disk space, 640K. Environmental Communications Consultants, Inc., 1759 Sharwood Place, Crofton, MD 21114. (301) 793-0622.

**SCHEDULED/UNSCHEDULED WORK SYSTEM**
This program manages preventive as well as nonroutine work activities. All scheduled work performed is recorded and costs are calculated and/or recorded. Unscheduled work is tracked from initial request through completion by a work order. Standard reports are provided as well as custom reports based on any items of stored information. Woolpert Data Services, 409 East Monument Avenue, Dayton, OH 45402. (513) 461-7698.

**MATERIALS/SPARE PARTS INVENTORY SYSTEM**
Interestingly, this program provides four normal inventory functions: It stores descriptive information on each item including suggested maximum, minimum, and reorder levels; provides information on current stock levels and items on order; provides a source of information for ordering items; prepares and displays up-to-date stocking information. Standard reports are provided as well as custom reports based on any items of stored information. Woolpert Data Services, 409 East Monument Avenue, Dayton, OH 45402. (513) 461-7698.

**TOOL RECORD SYSTEM.**
TRS provides information on each tool. Tool records can be retrieved, sorted and reported in any way desired. Standard reports are provided as well as custom reports based on any items of stored information Woolpert Data Services, 409 East Monument Avenue, Dayton, OH 45402. (513) 461-7698.

**SARA Chemical Inventory System.**
This program provides the means for compliance with SARA Community "Right-to-Know" by generating the appropriate information for Title III reports under Sections 311, 312, and 313 of the Superfund Amendments and Reauthorization Act. It provides a comprehensive inventory system. In an emergency, the system enables you to respond quickly with full knowledge of the potential hazards at a specific location. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**TOXIC ALERT**—*Hazardous Chemicals Compliance System.*
It can be used to prepare and keep track of MSDS's provided by manufacturers, users, and distributors of chemicals. The program provides access to information needed to respond to emergency incidents. It also maintains an audit trail of key compliance events and actions. The software provides extensive printing and record-keeping capabilities for documenting "Right-to-Know" compliance. It also includes a mass balance equation system for tracking liquid storage tank inventories. Requires: 256K and 2 floppy drives. Runs on CICS/COBOL, AS/400. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**LABEL MAKER.**
This is an effective way to print hazard and warning labels for your chemical containers as well as many other uses. You can create labels using the system's word processor or you can copy information from MSDS's, the ANSI phrase file (included with the system, or your own text files. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**ECOTRAC**—*Modular Comprehensive Environmental Management System.*
This is a modular software product composed of 9 individual modules discussed below, which can either stand alone or combine to form one system. *Permit Tracking*—outlines key information pertaining to environmental permits. The key information includes responsible agency and company contacts per source permit, limitations and stipulations in the permit, special permit handling information, and key dates. Key dates are tracked for reports, monitoring conditions, hearings, reviews, renewals, and submittal dates. *Environmental Events*—tracks significant events for the manager, including: permit expirations, citations, inspections, spills, hearing and rulemaking dates, and environmental audits. It can track pending litigation, keep track of fines, and summarize resolutions to environmental problems. *Source Inventory*—outlines sources of air, water, and waste emissions. Maintains toxic storage depot facilities information, manages monitoring data, and provides information on any source Outlines specific pollutants by source and analyzes trends over time. It generates reports for submission to applicable agencies. *Toxic Substances Control Act Management*—keeps track of PCBs, asbestos, and other toxic substances at an appliance level. It manages information as to the type of appliance, date installed, service records, location, transport, and status information. Also, it maintains disposal records for retired appliances and records individuals responsible for a given appliance. *Groundwater Monitoring*—manages data collected from monitoring wells. It can perform averages, minimum, maximum, and standard deviations for each parameter. The system tracks trends in data by well and parameter, and allows up to four analyses per sample for all chemical analyzed per well. It also include aquifer level and flow information in well descriptions. Also includes the capabilities of handling laboratory blinds and audit samples with the data, and statistical testing using the Student's T-test. *Manifest Tracking*—reports transit manifests for hazardous and toxic waste disposal. Reports open manifests and exception management reports (loss, spill, etc.). Records responsible party for shipments and includes data for final toxic storage depot. Includes a "trial balance" report for wastes to determine total balance of toxic wastes for a given facility. Produces

# Miscellaneous

| COMPANY | PROGRAM | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AAA Technology and Specialties Co. | Gino-F | c | | | | | | | | | | | | | |
| Anafaze | Anasoft | | | e | | | | | | | | | | | |
| Asyst Software Technologies | Asyst 3.0 | c | d | e | | g | | i | | k | | | | | |
| Automated Compliance Systems | DataPak | | | e | | | | | | | | | | | |
| Automated Compliance Systems | SeedPak1 | c | | e | f | | | | | | | | | | |
| Automated Compliance Systems | SeedPak2 | c | | e | f | | | | | k | | | | | |
| BBN Software Products | RS/1 | c | d | | | | | | | | | | | | |
| Beckman Instruments | Easylims | c | d | e | | | | l | | | | | | | |
| Coade Engineering | Chemcad | | | | | g | | | | | | | | | |
| Datastream Systems | Maintenance Pac 2 | | | e | | | | | | | | | n | o | |
| Dawn Graphics Company | FLOWPLANNER | c | | | | | | | | | | | | | |
| ERM Computer Services | Enflex Info | | | | | | | | j | | | | | | |
| Facility Management Technology | Maintenance Management System | | | e | | | | | | | | | | | |
| Facility Management Technology | Facility Data Management | | | e | | | | | | | | | | | |
| Facility Management Technology | Plant Operation/Troubleshooting | | | e | | | | | | | | | | | |
| Facility Management Technology | Monitoring & Control System | | | e | | | | | | | | | | | |
| General Research Corporation | Personnel Assurance System (PASS) | | | e | | | | i | | | | | | | |
| Golden Software | Surfer | c | | | | | | | | | | | | | |
| Golden Software | Grapher | c | | | | | | | | | | | | | |
| HavenTree Software Ltd | EasyFlow | | | | | | | | | | l | | | | |
| HazMat Control Systems | Tic/Trac | | | e | | | | | | | | | | | |
| Heuristics Inc. | Onspec | | | | | | | | | k | | | | | |
| Innovative Software | SmartWare | | | | | | | | | | | | | | |
| In Situ | Contur | c | | | | | | | | | | | | | |
| [illegible] Software | [illegible] | | | | | | | | | | | | | | |
| [illegible] Software | [illegible] | | | | | | | | | | | | | | |
| [illegible] | [illegible] | | | | | | | | | | | | | | |
| Logical Technology Inc. | Directory | c | | | | | | | | | | | | | |
| MathSoft, Inc. | MathCAD 2.0 | | d | | | | | | | | | | | | |
| Metcalf & Eddy | COPE | | | e | | | | | | | | | | | |
| [illegible] | RTM 5300 | | | | | | | | | | | | | | |
| Minesoft Ltd. | Techbase | c | | | | | | | | | | | | | |
| Minitab, Inc. | Minitab 7.1 | c | d | e | | | | l | | | | | | | |
| MTS Software | Curvefit | | | | | | | | | | | | | | |
| O'Brien & Gere Engineers | Vehicle Maintenance System | | | e | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Odessa Engineering | Envicom (Communications) | | | | | | | | | | | | | | |
| Odessa Engineering | Cnvaid | c | | | | | | | | | | | | | |
| Peter Norton Computing | Norton Utilities 4.0/Advanced Edition | | | | | | h | | | | | | | | |
| Scott Heidenreich | Dunamis | | | e | | | | | | | | | | | |
| Solid Waste Technologies | Waste Management System | | | e | | | | | | | | | | | p |
| Techdata | Tech-Graph-Pad | c | | | | | | | | | | | | | |
| Techdata | Sciplot | c | | | | | | | | | | | | | |
| Techna Corp. | Chemreg | | | | | | | | | | | | | | |
| TriDec International Corp | Labman | | d | e | | | | i | | | | | n | | |
| Trinity Consultants | Breeze Way | | | e | | | | | | | | | | | |
| Universal Technical Systems | TK Solver Plus | | d | | | | | | | | | | | | |
| Vsoft | Document Image Database System | | | | | | | | | | | m | | | |
| WJJ Computer Systems | Project Control System | | | e | | | | | | | | | | | |
| Woolpert Data Services | Scheduled/Unscheduled Work System | | | e | | | | f | | | | | | o | |
| Woolpert Data Services | Materials/Spare Parts Inventory System | | | e | | | | i | | | | | n | o | |
| Woolpert Data Services | Tool Record System | | | e | | | | | | | | | n | o | |

c = Graphics, Data Mapping
d = Equation Solving
e = Administration, Management
f = Integrated Software
g = Plant Simulation
h = Utilities
i = Decision Making
j = State, Federal Regulations
k = Control, Networking
l = Flowcharting
m = Document Scanner
n = Inventory
o = Maintenance
p = Solid Waste Management

the Uniform Manifest Form as a standard report and assists in verifying waste minimization program effectiveness. *Drum Inventory*—tracks contents and locations of drums from the date packed to ensure compliance with 90 day storage limits. Detailed waste information is also tracked in drum contents reports. Summary reports of drums shipped or drums in storage are produced. *Radiation Waste Management*—specifically designed to track the disposal of radioactive waste materials. Reports total quantities, activities, and form of contaminants so that complete waste inventories can be obtained. Monthly summary reports can be generated with up to five user determined selection criteria. Hazox Corporation, PO Box 537, Chadds Ford, PA 19317. (215) 358-4990.

**FINDEX**—*Information Indexing and Retrieval.*
FINDEX is an information indexing and retrieval tool which allows rapid search of MSDS files. It can search a database of a thousand MSDSs for a single word and give a list of all the MSDSs where the word occurs—in less than one second. The search can include as many words as needed. It is only available in combination with specially selected packages that make use of its power and flexibility. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**TRAINING LEDGER SYSTEM**—*Right-to-Know system.*
This program is designed to help you organize your own "Right-to-Know" compliance program. Used to maintain dynamic records of the training status of each of your employees, the system will enable you to have ready documentation on your current level of compliance. Among other benefits, now you'll be able to quickly fill new openings with properly trained people. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**LABEL MAKER**—*System to Print Hazard and Warning Labels.*
This program is an effective way to print hazard and warning labels for your chemical containers as well as many other uses. You can create labels using the system's word processor or you can copy information from MSDSs, the ANSI phrase file, included with the system, or your own text files. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**MSDS DISPATCH**—*MSDS distribution system.*
This program is designed for chemical manufacturers and distributors who must provide MSDSs to customers. The system checks that customers have received the latest MSDS. It also prints MSDSs with customer information, cover letter. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**FACILITY EMERGENCY DATA (FED).**
FED stores emergency plans using a "free-form" method similar to MSDSs. It allows the user to design and store more or less information depending on the complexity of the facility. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**LEPC/EMERGENCY RESPONDER SYSTEM.**
This is a system for Local Emergency Planning Committees, State Emergency Response Commissions, and other agencies that receive SARA Title III reports. Emergency Plans, MSDSs, and Tier I and II reports can be integrated into a single system. It includes *Toxic Alert, Facility Emergency Data, SARA,* and *Convert,* for converting standard word processing documents into Hazox's formatted MSDSs and FED Emergency Plans. Hazox Corporation, PO Box 637, Chadds Ford, PA 19317. (215) 358-4990.

**ENFLEX DATA**—*Comprehensive Environmental Information and Data Management System.*
It can generate detailed reports and graphs for regulatory agencies and field operations, as well as summary reports for corporate management. Over 70 preprogrammed reports have been included to help get users started. Fourteen modules, available separately, allow the user to tailor a system. Included are: *SARA Right-to-Know Inventory, Permits Tracking, NPDES Reporting, Manifests, Ground Water Monitoring, PCB Record-Keeping, Auditing, Air Emissions, Underground Storage Tanks, Drum Tracking, Environmental Events, Fugitive Emissions, Calendar,* and *MSDS.* Software runs on IBM compatible PCs or mainframes, as well as DEC Micro Vax II and Vax computers. It is fully supported by an 800 hotline. ERM Computer Services, Inc., 855 Springdale Dr., Exton, PA 19341. (800) 544-3118.

**ENFLEX INFO**—*Regulation Database.*
This program provides direct access to the full text of current federal and state environmental regulations. Using it a user can answer very specific questions as "What are the current testing requirements for underground storage tanks in California," or broader questions such as "What air requirements apply to my asphalt coating facility in New Jersey?" It provides access to current regulations, provides full text of regulations, locates specific requirements of groups of regulations, it is supported with an 800 number, it lets you print the regulations, it locates regulations by citation, subject, issue, type of operation, type of requirement, or any word or phrase. ENFLEX INFO is provided on a compact laser disc capable of storing 250,000 pages of text. ERM Computer Services, Inc., 855 Springdale Dr., Exton, PA 19341. (800) 544-3118.

**ENFLEX 313**—*Toxic Chemical Release Reporting.*
This software does all calculations, manages all release data, and generates the Title 313 Form R. It also functions as a module of ENFLEX DATA. There are four release bases: monitoring, calculations, emission factors, and mass balance. ERM Computer Services, Inc., 855 Springdale Dr., Exton, PA 19341. (800) 544-3118.

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*Gerald A. Rich is PE's Senior Field Editor. Gerry is a Registered Professional Engineer and a Registered Environmental Professional. He has extensive experience with governmental regulation and environmental consulting.*

**Best's Safety Directory**

*Source*

A.M. Best Company, Inc.
Oldwick, NJ
(201) 439-2200

*Emergency Preparedness Training*

Audiovisual Programs.

Environmental Management and Compliance Corp., (201)785-8450
Fire Prevention through Films, (617)965-4444
Lab Safety Supply Co., (800)356-0783
London-Hill Productions, Inc., (215)860-0427
Marcom Group, (800)654-2448
NUS Training Corp., (800)338-1505
Occupational Medical Center, (202)488-7990
Safety Specialists, (408)988-1111
Unz and Co., (201)795-5400

Computer Programs.

AZIMUTH Technologies, (818)405-0300
Environmental Management and Compliance Corp.
Hawkwa Group, (312)949-8488
Occupational Medical Center
Safety Specialists
Unz and Co.

Literature and Training Manuals.

Cinema Safety Products, (800)468-4296
Communications Concepts, (213)420-9195
Environmental Management and Compliance Corp.
Intersafe Training Institute, (503)252-4446
Keller and Associates, (800)327-6868
Motivational Enterprises, (800)637-2338
National Safety Council, (312)527-4800
Occupational Medical Center
Van Nostrand Reinhold, (212)254-3232

Slides, Filmstrips, Films.

Environmental Management and Compliance Corp.
Marcom Group
Occupational Medical Center

Tapes, Cassette.

Environmental Management and Compliance Corp.
London-Hill Productions
Marcom Group
Occupational Medical Center

*Environmental Protection Training*

Literature and Training Manuals.

Applied Health Physics, (412)563-2242
Bilsom International, (703)834-1070
Cinema Safety Products
Environmental Management and Compliance Corp.
Genium Publishing Corp., (518)377-8854
Intersafe Training Institute
Keller and Assoc.
National Safety Council
Occupational Medical Center
Safety Specialists
Unz and Co.
Van Nostrand Reinhold

Slides, Filmstrips, Films.

Coronet/MTI Film and Video, (800)621-2131
Environmental Management and Compliance Corp.
Occupational Medical Center
Visucom Productions, (800)222-4002

Audiovisual Programs.

Bilsom International
Coronet/MTI Film and Video
Direct Safety Co., (602)968-7009
Environmental Management and Compliance Corp.
International Film Bureau, (312)427-4545
Keller and Assoc.
NUS Training Corp.
Occupational Medical Center

Cassette Tapes.

Environmental Management and Compliance Corp.
Genium Publishing Corp.
Occupational Medical Center

Training Courses.

Environmental Management and Compliance Corp.
Safety Specialists
Unz and Co.

Computer.

AZIMUTH Technologies, Inc., (818)405-0300
Devco Engineering Inc., (201)228-0321
Environmental Management and Compliance Corp.
Genium Publishing Corp.
Hawkwa Group
Occupational Medical Center
Safety Specialists
Unz and Co.

## 5 EXAMPLE COURSE OUTLINES

Hazardous Material Control and Emergency Response School

**Monday (12 February 1990) 7:15 A.M. - 6:00 P.M.**

| | | | Notebook Tab |
|---|---|---|---|
| 7:15 - 8:15 A.M. | Registration - Bus Trip | | |
| 8:15 - 8:25 A.M. | Welcome | NEMETH | |
| 8:25 - 9:00 A.M. | School Overview and Organization | KAMPERMAN | 1. |
| 9:00 - 10:00 A.M. | Introduction to Hazardous Materials | CHOVAN | 2. |
| 10:00 - 10:15 A.M. | Break | | |
| 10:15 - 11:45 A.M. | Identification/Characteristics of Hazardous Materials | WALSH | 3. |
| 11:45 - 1:00 P.M. | Lunch/PPE Distribution | | |
| 1:00 - 2:30 P.M. | Demonstrations of Chemical Dangers & Explosives | STAFF | 3. |
| 2:30 - 3:15 P.M. | Hazardous Material Containment/ Sorbents | THOMASTON | 4. |
| 3:15 - 3:30 P.M. | Break | | |
| 3:30 - 4:15 P.M. | Toxicology | WILLIAMS | 5. |
| 4:15 - 5:00 P.M. | Aid & Assistance | KAMPERMAN | 6. |
| 5:00 - 6:00 P.M. | Dilemmasaurus | KAMPERMAN | 7. |
| 6:00 - | Return Bus Trip to Hotel | | |
| 7:30 - 8:30 P.M. | Reception - Hawthorn Suites | | |

**Tuesday (13 February 1990) 7:20 A.M. - 6:30 P.M.**

| | | | Notebook Tab |
|---|---|---|---|
| 7:20 - 8:00 A.M. | Bus Trip | | |
| 8:00 - 9:30 A.M. | Respiratory Protection | SARTORE | 8. |
| 9:30 - 10:45 A.M. | Personal Protective Clothing | VARTANIAN | 9. |
| 10:45 - 11:00 A.M. | Break | | |
| 11:00 - 11:45 A.M. | Decontamination | LOWISH | 10. |
| 11:45 - 12:30 P.M. | Lunch | | |
| 12:3( - 1:45 P.M. | Compressed Gases | LOWISH | 11. |
| 1:45 - 2:00 P.M. | Break | | |
| | FIELD DEMONSTRATIONS | | |
| 2:00 - 6:30 P.M. | Decontamination | STAFF | |
| | SCBA's/Smokehouse and Encapsulated Suits | STAFF | 12. |
| | Patching, Stabilization, Spill Containment, and Recovery/ Chlorine Patching | STAFF | |
| 6:30 | Return Bus Trip to Hotel | | |

**Wednesday (14 February 1990) 7:20 A.M. - 6:45 P.M.**

| | | | Notebook Tab |
|---|---|---|---|
| 7:20 - 8:00 A.M. | Bus Trip | | |
| 8:00 - 9:00 A.M. | Emergency Medical Treatment | QUAMMEN | 13. |
| 9:00 - 9:45 A.M. | Liabilities and Penalties | TSCHIRHART | 14. |
| 9:45 - 10:00 A.M. | Break | | |
| 10:00 - 11:00 A.M. | Air Sampling & Monitoring | JACOBS | 15. |
| 11:00 - 11:45 A.M. | Lunch/Spill Video Viewing | | |
| 11:45 - 1:15 P.M. | Incident Command Structure | CHOVAN | 16. |
| 1:15 - 2:00 P.M. | Response Team Formation | KAMPERMAN | 17. |
| 2:00 - 2:15 P.M. | Break | | |
| 2:15 - 2:45 P.M. | Foam Use and Applications | STAFF | 18. |
| 2:45 - 6:45 P.M. | Hazardous Material Documentation Requirements/ Spill Problem Homework/Foam and Propane Demonstrations | STAFF | 19. |
| 6:45 | Return Bus Trip to Hotel | | |

**Thursday (15 February 1990) 7:20 A.M. - 6:00 P.M.**

| | | | Notebook Tab |
|---|---|---|---|
| 7:20 - 8:00 A.M. | Bus Trip | | |
| 8:00 - 9:15 A.M. | Spill Problem Answer Session | KAMPERMAN | 20. |
| 9:15 - 10:15 A.M. | Safe Handling of Biological Agents | LISELLA | 21. |
| 10:15 - 10:30 A.M. | Break | | |
| 10:30 - 11:15 A.M. | Public Relations | LISELLA | 22. |
| 11:15 - 12:30 P.M. | Lunch/Spill Video Viewing | | |
| 12:30 - 1:45 P.M. | Preparation for Spill Simulation | KAMPERMAN | |
| 1:45 - 4:45 P.M. | Spill Simulation 1 | STAFF | 23. |
| | Break | | |
| 4:45 - 6:00 P.M. | Equipment Clean-up/ Simulation Review & Critique | STAFF | |
| 6:00 | Return Bus Trip to Hotel | | |

**Friday (16 February 1990) 7:20 A.M. - 4:15 P.M.**

| | | | Notebook Tab |
|---|---|---|---|
| 7:20 - 8:00 A.M. | Bus Trip | | |
| 8:00 - 8:45 A.M. | Emergency Planning & Response Under Title III | FOLEY | 24. |
| 8:45 - 9:30 A.M. | Preparation for Spill Simulation 2 | KAMPERMAN | |
| 9:30 - 11:30 A.M. | Spill Simulation 2 | STAFF | 23. |
| 11:30 - 12:00 Noon | Equipment Clean-Up | STAFF | |
| 12:00 - 12:45 P.M. | Lunch | | |
| 12:45 - 1:45 P.M. | Simulation 2 Review/Critique | STAFF | |
| 1:45 - 2:00 P.M. | School Evaluation/Award of Certificates | STAFF | |
| 2:00 | Return Bus Trip to Hotel | | |
| 2:15 - 4:15 P.M. | Optional Exam | NELSON | |
| 4:15 | Return Trip to Hotel | | |

| SCHEDULE | COURSE TOPICS | INSTRUCTORS |
|---|---|---|
| 8:00 - 8:30 | REGISTRATION AND OPENING REMARKS | Continuing Education Staff |
| 8:30 - 8:45 | COURSE INTRODUCTION | Nemeth |
| 8:45 - 9:30 | HAZARDOUS WASTE: A DEFINITION | Calmbacher |
| 9:30 -10:30 | GENERATOR REGULATIONS | Kamperman |
| 10:30 -10:45 | Break | |
| 10:45 -11:30 | WASTE OILS AND UNDERGROUND STORAGE TANKS | Bevington |
| 11:30 -12:45 | LUNCH | |
| 12:45 - 1:45 | MANIFESTING, PRE-TRANSPORT REQUIREMENTS, AND RECORD-KEEPING AND REPORTING | Melton |
| 1:45 - 2:15 | PLANNING | Bevington |
| 2:15 - 2:30 | REFRESHMENT BREAK | |
| 2:30 - 3:15 | PLANNING | Bevington |
| 3:15 - 4:00 | PERSONNEL TRAINING PLANS | Nemeth |
| 4:00 - 4:45 | LEGAL RESPONSIBILITIES AND LIABILITIES | Melton |
| 4:45 - 5:00 | QUESTIONS AND ANSWERS AWARDING OF CERTIFICATES | Course Faculty |

# GEORGIA INSTITUTE OF TECHNOLOGY

## HAZARDOUS WASTE GENERATORS: REQUIREMENTS AND COMPLIANCE

### 27 JANUARY 1987

### COURSE FACULTY

**COURSE DIRECTOR:**

Mr. Kevin L. Kamperman, M.S.P.H.
Waste Management Specialist
Hazardous and Industrial Waste
Management Group
Georgia Tech Research Institute
GTRI/EDL/EHSD
Atlanta, Georgia 30332
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**COURSE FACULTY:**

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Mr. C. Marty Melton
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(404)894-3806

John C. Nemeth, Ph.D.
Chief, Environmental, Health
and Safety Division
Georgia Tech Research Institute
GTRI/EDL/EHSD
Atlanta, Georgia 30332
(404) 894-3806

| SCHEDULE | COURSE TOPICS | INSTRUCTORS |
|---|---|---|
| 8:00 - 8:30 | REGISTRATION AND OPENING REMARKS | Continuing Education Staff |
| 8:30 - 9:30 | INTRODUCTION TO HAZARDOUS MATERIALS AND WASTE TRANSPORTATION | Ramsey |
| 9:30 -10:30 | MARKING, LABELING, AND PLACARDING | Brooks |
| 10:30 -10:45 | REFRESHMENT BREAK | |
| 10:45 -11:45 | PACKAGING REQUIREMENTS | Ramsey |
| 11:45 - 1:00 | LUNCH | |
| 1:00 - 1:45 | DOCUMENTATION REQUIREMENTS | Melton |
| 1:45 - 2:30 | LOADING AND UNLOADING REQUIREMENTS | Lowish |
| 2:30 - 2:45 | REFRESHMENT BREAK | |
| 2:45 - 4:00 | DRIVER'S QUALIFICATIONS AND RESPONSIBILITIES | Brooks |
| 4:00 - 4:30 | QUESTIONS AND ANSWERS AWARDING OF CERTIFICATES | Course Faculty |

GEORGIA INSTITUTE OF TECHNOLOGY

TRANSPORTATION OF HAZARDOUS MATERIALS AND WASTE

28 JANUARY 1987

COURSE FACULTY

## COURSE DIRECTOR:

Mr. Kevin L. Kamperman, M.S.P.H.
Waste Management Specialist
Hazardous and Industrial Waste
Management Group
Georgia Tech Research Institute
GTRI/EDL/EHSD
Atlanta, Georgia 30332
(404) 894-3806

## COURSE FACULTY:

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Special Agent
U.S. Department of Transportation
Federal Highway Administration
Bureau of Motor Carrier Safety
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Atlanta, Georgia 30367
(404) 347-4966

Mr. Michael D. Lowish, ASP
Safety & Health Specialist
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(404) 894-3806

Mr. C. Marty Melton
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Atlanta, Georgia 30332
(404) 894-3806

Mr. Charles E. Ramsey
Transportation Safety Consultants, Ltd.
4722 Darlene Way
Tucker, Georgia 30084
(404) 934-2034

| SCHEDULE | COURSE TOPICS | INSTRUCTORS |
|---|---|---|
| 8:30 - 9:00 | REGISTRATION | Continuing Education Staff |
| 9:00 - 9:45 | SAFETY AT HAZARDOUS WASTE SITES: AN OVERVIEW | Nemeth |
| 9:45 -10:30 | INTRODUCTION TO TOXICOLOGY | Calmbacher |
| 10:30 -10:45 | REFRESHMENT BREAK | |
| 10:45 -11:15 | HAZARD IDENTIFICATION AND ASSESSMENT | Calmbacher |
| 11:15 -12:00 | CHEMICAL INCOMPATABILITY | Kamperman |
| 12:00 - 1:15 | LUNCH | |
| 1:15 - 2:15 | MONITORING AND DETECTION | Middendorf |
| 2:15 - 3:15 | EMERGENCY PROCEDURES AND NOTIFICATION | Melton |
| 3:15 - 3:30 | REFRESHMENT BREAK | |
| 3:30 - 4:15 | DECONTAMINATION | Lowish |
| 4:15 - 4:45 | QUESTIONS AND ANSWERS | Course Faculty |

## HAZARDOUS WASTE SITE SAFETY

## COURSE OUTLINE - DAY TWO

## 30 JANUARY 1987

| SCHEDULE | COURSE TOPICS | INSTRUCTORS |
|---|---|---|
| 8:00 - 9:00 | SPILL CONTROL AND EMERGENCY PROCEDURES | Kamperman |
| 9:00 -10:00 | HAZARDOUS WASTE SAMPLING DEMONSTRATION | Kamperman<br>Middendorf |
| 10:00 - 10:15 | REFRESHMENT BREAK | |
| 10:15 - 11:15 | PERSONAL PROTECTIVE EQUIPMENT DEMONSTRATION | Middendorf<br>Kamperman |
| 11:15 - 12:45 | LUNCH | |
| 12:45 - 1:30 | CHEMICAL DEMONSTRATIONS | Kamperman<br>Pike |
| 1:30 - 2:00 | VACUUM TRUCK DEMONSTRATION | Barton |
| 2:00 - 3:00 | BREAK, AWARDING OF-CERTIFICATES<br>QUESTIONS & ANSWERS | Course Faculty |
| 3:00 - 5:00 | OPTIONAL EXAM | Course Faculty |

# GEORGIA INSTITUTE OF TECHNOLOGY

## HAZARDOUS WASTE SITE SAFETY

## 29 & 30 JANUARY 1987

## COURSE FACULTY

**COURSE DIRECTOR:**

Mr. Kevin L. Kamperman, M.S.P.H.
Waste Management Specialist
Hazardous and Industrial Waste
Management Group
Georgia Tech Research Institute
GTRI/EDL/EHSD
Atlanta, Georgia 30332
(404)894-3806

**COURSE FACULTY:**

Mr. William Barton
President
Barton Environmental, Inc.
1642 Forest Parkway
Lake City, GA 30050
(404) 363-9801

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Mr. Michael D. Lowish, ASP
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Georgia Tech Research Institute
GTRI/EDL/EHSD
Atlanta, Georgia 30332
(404)894-3806

Mr. C. Marty Melton
Safety & Health Specialist
Georgia Tech Research Institute
GTRI/EDL/EHSD
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John C. Nemeth, Ph.D.
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Mr. Philip L. Williams, CIH
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Atlanta, Georgia 30332
(404)894-3806

**COURSE DIRECTORS: DAVE W. MAYER & ROBERT SCHMITTER**

**TUESDAY (October 24, 1989) 8:00 A.M. - 5:15 P.M.**

| | | |
|---|---|---|
| 8:00- 8:30 A.M. | Registration | EDUCATION EXTENSION STAFF |
| 8:30- 8:45 A.M. | Welcome & Orientation | JOHN NEMETH |
| 8:45- 9:00 A.M. | Ccurse Overview | DAVE MAYER |
| 9:00-10:15 A.M. | Background Information Regarding Underground Tanks: Regulatory & Technical Update | JOE CARPENTER |
| 10:15-10:30 A.M. | Break | |
| 10:30-11:30 A.M. | Legal & Insurance Considerations | ED HALLMAN |
| 11:30-12:45 A.M. | Lunch | |
| 12:45- 1:30 P.M. | Steel Tank Design & Buffalo Tank Coatings | CHARLES ERDMAN |
| 1:30- 2:30 P.M. | Design of Underground Tank and Piping Systems | STEVE NACHT |
| 2:30- 2:40 P.M. | Break | |
| 2:40- 3:15 P.M. | Fiberglass Tank Design | ED NIESHOFF |
| 3:15- 3:25 P.M. | Break | |
| 3:25- 5:00 P.M. | Leak Detection Methodologies: An Overview | STEVE NACHT |
| 5:00- 5:15 P.M. | Review, Questions, & Answers | |

**GEORGIA INSTITUTE OF TECHNOLOGY**

**LEAKING UNDERGROUND STORAGE TANK WORKSHOP**

**OCTOBER 24-27, 1989**

**COURSE SCHEDULE**

**WEDNESDAY (October 25, 1989) 8:30 A.M. - 4:00 P.M.**

| | | |
|---|---|---|
| 8:30- 9:30 A.M. | Steel Piping & Tank Installation Procedures | GEORGE WATKINS |
| 9:30-10:30 A.M. | Safety Considerations for Tank Installation Procedure | MIKE LOWISH |
| 10:30-10:45 A.M. | Break | |
| 10:45-12:00 NOON | Cathodic Protection of Underground Tanks | KEVIN GARRITY |
| 12:00- 1:15 P.M. | Lunch | |
| 1:15- 2:15 P.M. | Fiberglass Piping Installation Procedures | REID VAN CLEAVE |
| 2:15- 2:30 P.M. | Break | |
| 2:30- 3:30 P.M. | Current Activities & Future Trends In State Regulations | MARLIN GOTTSCHALK<br>JOE CARPENTER |
| 3:30- 4:00 P.M. | Review, Questions, & Answers | |

# GEORGIA INSTITUTE OF TECHNOLOGY

## LEAKING UNDERGROUND STORAGE TANK WORKSHOP

## OCTOBER 24-27, 1989

## COURSE SCHEDULE

**THURSDAY (October 26, 1989) 8:30 A.M. - 4:30 P.M.**

8:30- 9:00 A.M. Transportation to Field Site

Rotational Sessions

9:00-10:30 A.M. Rotation I

| Group I | Group II |
|---|---|
| Installation Procedures<br>Steel Tanks and Piping Systems | Installation Practices for<br>Fiberglass Tanks and Piping Systems |
| GEORGE WATKINS | ROBERT WIGGINS |

10:30-10:45 A.M. Break

10:45-11:30 A.M. Rotation II

| Group II | Group I |
|---|---|
| Installation Procedures for<br>Steel Tanks and Piping Systems | Installation Procedures for<br>Fiberglass Tanks and Piping Systems |
| GEORGE WATKINS | ROBERT WIGGINS |

| | | |
|---|---|---|
| 11:30-12:00 P.M. | Transportation to Georgia Tech Campus | |
| 12:00- 1:15 P.M. | Lunch | |
| 1:15- 1:45 P.M. | Inspection of Underground Tanks Systems | COURSE FACULTY |
| 1:45- 2:00 P.M. | Break | |
| 2:00- 3:15 P.M. | Tank Removal Procedures | BRUCE PATTERSON |
| 3:15- 3:30 P.M. | Break | |
| 3:30- 4:00 P.M. | Video: Management of Underground Storage Systems | DAVE MAYER |
| 4:00- 4:30 P.M. | Review, Questions, & Answers | |

# GEORGIA INSTITUTE OF TECHNOLOGY

## LEAKING UNDERGROUND STORAGE TANK WORKSHOP

## OCTOBER 24-27, 1989

## COURSE SCHEDULE

**FRIDAY (October 27, 1989) 8:30 A.M. - 2:15 P.M.**

| | | |
|---|---|---|
| 8:30-10:00 A.M. | Product Recovery & Ground Water Remediation | KEN STILL |
| 10:00-10:15 A.M. | Break | |
| 10:15-10:45 A.M. | Case Study - Video | DAVE MAYER |
| 10:45-11:15 A.M. | International Overview - Video | DAVE MAYER |
| 11:15-11:45 A.M. | Review, Questions, & Answers | DAVE MAYER |
| 11:45-12:45 P.M. | Lunch | |
| 12:45- 2:15 P.M. | Optional Exam | MATTHEW MALOK |

# GEORGIA INSTITUTE OF TECHNOLOGY

# LEAKING UNDERGROUND STORAGE TANK WORKSHOP

# OCTOBER 24-27, 1989

## COURSE FACULTY

### COURSE DIRECTORS:


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## COURSE FACULTY, Continued

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## TRAINING PROGRAMS OFFICE

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**COURSE DIRECTORS: DAVE MAYER & MARK DEMYANEK, CSP**

**THURSDAY (August 17, 1989) 8:00 A.M. - 5:00 P.M.**

| | | |
|---|---|---|
| 8:00 - 8:30 A.M. | Registration | EDUCATION EXTENSION STAFF |
| 8:30 - 8:45 A.M. | Welcome & Orientation | JOHN NEMETH |
| 8:45 - 9:00 A.M. | Course Overview | DAVE MAYER |
| 9:00 - 9:45 A.M. | EPA Regulatory & Technical Overview | JOE CARPENTER |
| 9:45 - 10:00 A.M. | Break | |
| 10:00 - 10:30 A.M. | Initial Response Actions | ROCHIE TSHIRCHART |
| 10:30 - 12:00 Noon | Site Assessment Procedures | TUSHAR TALELE |
| 12:00 - 1:15 P.M. | Lunch | |
| 1:15 - 1:45 P.M. | Video: Tank Closure Procedures | COURSE STAFF |
| 1:45 - 2:15 P.M. | Corrective Action Planning Guidelines | RON BENDA |
| 2:15 - 2:30 P.M. | Break | |
| 2:30 - 3:30 P.M. | Soil Monitoring & Sampling Procedures | BOB STANFORTH |
| 3:30 - 4:30 P.M. | Bioreclamation | TUSHAR TALELE |
| 4:30 - 5:00 P.M. | Review, Questions & Answers | |

GEORGIA INSTITUTE OF TECHNOLOGY

LEAKING UNDERGROUND STORAGE TANKS:
CORRECTIVE ACTION ALTERNATIVES

AUGUST 17 - 18, 1989

COURSE SCHEDULE

COURSE DIRECTORS: DAVE MAYER & MARK DEMYANEK, CSP

FRIDAY (August 18, 1989) 8:30 A.M. - 3:00 P.M.

| | | |
|---|---|---|
| 8:30 - 10:15 A.M. | Ground Water Recovery Systems and Demonstrations | KEN STILL |
| 10:15 - 10:30 A.M. | Break | |
| 10:30 - 11:30 A.M. | Vacuum Air Extraction Procedures | BOB STANFORTH |
| 11:30 - 12:45 P.M. | Lunch | |
| 12:45 - 1:45 P.M. | Case Study | JOHN ENNIS |
| 1:45 - 2:00 P.M. | Break | |
| 2:00 - 2:45 P.M. | Panel Discussions | |
| 2:45 - 3:00 P.M. | Review, Summary & Certificates | |

GEORGIA INSTITUTE OF TECHNOLOGY

LEAKING UNDERGROUND STORAGE TANKS:
CORRECTIVE ACTION ALTERNATIVES

AUGUST 17 - 18, 1989

COURSE FACULTY

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Georgia Tech Research Institute
Atlanta, GA 30332
(404) 894-3806


## COURSE FACULTY:


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**WEDNESDAY (4 February) 8:30 A.M. - 4:30 P.M.**

| TIME | TOPIC | SPEAKER |
|---|---|---|
| 8:30 - 9:00 | Registration | Continuing Ed Staff |
| 9:00 - 9:05 | Welcome | John C. Nemeth |
| 9:05 - 9:15 | Introduction and Overview | David Mayer |
| 9:15 - 10:00 | Regulatory Requirements: An Overview | Mathew Hale |
| 10:00 - 10:15 | Break | |
| 10:15 - 11:15 | Continuous Monitoring of Operating Requirements | William Axon |
| 11:15 - 12:00 | Technical Aspects of Regulatory Requirements | Betty Willis |
| 12:00 - 1:15 | Lunch | |
| 1:15 - 3:30 | Panel: Air Pollution Control System Design | Charles Calmbacher Moderator |
| | 1:15 - 2:00 Particulate Removal Systems | Jim Walsh |
| | 2:00 - 2:30 Technology I | Stanton Sheppard |
| | 2:30 - 2:45 Break | |
| | 2:45 - 3:30 Technology II | Larry Hill |
| 3:30 - 4:30 | Questions and Answers | Presenters |
| 4:30 - 6:00 | Reception | |

GEORGIA TECH RESEARCH INSTITUTE

HAZARDOUS WASTE INCINERATION TODAY

4 and 5 FEBRUARY 1987

COURSE AGENDA

THURSDAY (5 February) 8:30 A.M. - 4:30 P.M.

| TIME | TOPIC | SPEAKER |
|---|---|---|
| 8:30 - 9:30 | Overview of Incinerator Design | Wallace K. Shakun |
| 9:30 - 10:00 | Rotary Kiln Incinerators | Ron Hale |
| 10:00 - 10:15 | Break | |
| 10:15 - 10:45 | Circulating Bed Incinerators | Harold Diot |
| 10:45 - 11:30 | Automatic Waste Cutoff Systems | Charles Anderson |
| 11:30 - 12:00 | Use of Oxygen in Industrial Incinerators | Tom McGowan |
| 12:00 - 1:15 | Lunch | |
| 1:15 - 1:45 | Quality Assurance, Record Keeping and Closure | Nancy McDevitt |
| 1:45 - 2:15 | Stack Gas Monitoring Technology I | Roy Vincik |
| 2:15 - 2:30 | Break | |
| 2:30 - 3:00 | Technology II | Tom Castleberry |
| 3:00 - 3:30 | Commercial Waste Incinerators | William Philipbar |
| 3:30 - 4:30 | Questions & Answers | Presenters |

GEORGIA INSTITUTE OF TECHNOLOGY

HAZARDOUS WASTE INCINERATION TODAY

4 and 5 FEBRUARY 1987

ATLANTA, GEORGIA

COURSE FACULTY

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MONDAY (February 5, 1990) 8:30 A.M. - 5:00 P.M.

COURSE DIRECTORS: Vicki H. Ainslie and Robert D. Schmitter

| | | |
|---|---|---|
| 8:30 - 9:00 A.M. | Registration | EDUCATION EXTENSION |
| 9:00 - 9:45 A.M. | Welcome and Orientation: Course Overview, Self-graded Pre-course Quiz and Comments on Post-course Exam | VICKI AINSLIE |
| 9:45 - 11:00 A.M. | Background Information Concerning Asbestos in Buildings | BOB SCHMITTER |
| 11:00 - 11:15 A.M. | Break | |
| 11:15 - 12:30 P.M. | Health Effects Related to Asbestos Exposure | DAVID BARNES, MD |
| 12:30 - 1:45 P.M. | Lunch | |
| 1:45 - 3:00 P.M. | Development and Implementation of Contract Specifications | BETH FISCHER |
| 3:00 - 3:15 P.M. | Break | |
| 3:15 - 4:30 P.M. | Federal Regulations | DAVE MAYER |
| 4:30 - 5:00 P.M. | Review, Questions & Answers | BOB SCHMITTER |

# GEORGIA INSTITUTE OF TECHNOLOGY

## SUPERVISION OF ASBESTOS ABATEMENT PROJECTS: COURSE AND WORKSHOP

**FEBRUARY 5-9, 1990**
**ATLANTA, GEORGIA**
**COURSE SCHEDULE**

**TUESDAY (February 6, 1990) 8:00 A.M. - 5:00 P.M.**

| | | |
|---|---|---|
| 8:00 - 8:30 A.M. | Optional Review of Course Material | VICKI AINSLIE |
| 8:30 - 9:30 A.M. | Pre-work Activities and Considerations | BETH FISCHER |
| 9:30 - 9:40 A.M. | Break | |
| 9:40 - 10:10 A.M. | Protecting the Worker: Protective Clothing | VICKI AINSLIE |
| 10:10 - 10:20 A.M. | Break | |
| 10:20 - 11:05 A.M. | Protecting the Worker: Respiratory Protection (Part I) | MARK DEMYANEK, CSP |
| 11:05 - 12:05 P.M. | Protecting the Worker: Respiratory Protection (Part II) | KEVIN DOWNES, CIH |
| 12:05 - 1:15 P.M. | Lunch | |
| 1:15 - 3:15 P.M. | Worker Protection Workshop: Respirators & Clothing | COURSE FACULTY |
| 3:15 - 3:30 P.M. | Break | |
| 3:30 - 4:30 P.M. | Establishing a Type-C Supplied-Air System | DAN McCLURE |
| 4:30 - 5:00 P.M. | Review, Questions & Answers | BOB SCHMITTER |

GEORGIA INSTITUTE OF TECHNOLOGY

SUPERVISION OF ASBESTOS ABATEMENT PROJECTS:
COURSE AND WORKSHOP

FEBRUARY 5-9, 1990
ATLANTA, GEORGIA
COURSE SCHEDULE

WEDNESDAY (February 7, 1990) 8:00 A.M. - 5:00 P.M.

| | | |
|---|---|---|
| 8:00 - 8:30 A.M. | Optional Review | KEVIN DOWNES, CIH |
| 8:30 - 9:45 A.M. | Air Sampling Requirements During and After the Project | BOB SCHMITTER |
| 9:45 - 10:00 A.M. | Break | |
| 10:00 - 11:00 A.M. | Preparing the Work Area and Establishing the Decontamination Station | RON AMONDS |
| 11:00 - 11:10 A.M. | Break | |
| 11:10 - 12:10 P.M. | Confining & Minimizing Airborne Fibers | RON AMONDS |
| 12:10 - 1:15 P.M. | Lunch | |
| 1:15 - 3:00 P.M. | Asbestos Workshops:<br>Session A: Work Area Set-up & Practices<br>Session B: Asbestos Recognition & Detection | COURSE FACULTY |
| 3:00 - 3:15 P.M. | Break | |
| 3:15- 5:00 P.M. | Asbestos Workshops:<br>Session A: Work Area Set-up & Practices<br>Session B: Asbestos Recognition & Detection | COURSE FACULTY |

**GEORGIA INSTITUTE OF TECHNOLOGY**

**SUPERVISION OF ASBESTOS ABATEMENT PROJECTS: COURSE AND WORKSHOP**

**FEBRUARY 5-9, 1990**
**ATLANTA, GEORGIA**
**COURSE SCHEDULE**

THURSDAY (February 8, 1990) 8:00 A.M. - 5:00 P.M.

| | | |
|---|---|---|
| 8:00 - 8:30 A.M. | Optional Review | VICKI AINSLIE |
| 8:30 - 9:15 A.M. | Medical Surveillance | VICKI AINSLIE |
| 9:15 - 10:00 A.M. | Cleaning Up the Work Area | LEE STASKA |
| 10:00 - 10:15 A.M. | Break | |
| 10:15 - 11:15 A.M. | Safety & Health Considerations | MICHAEL LOWISH, CSP |
| 11:15 - 12:00 P.M. | Waste Disposal Practices and Requirements | DAVE MAYER |
| 12:00 - 1:15 P.M. | Lunch | |
| 1:15 - 3:00 P.M. | Glovebag: Lecture & Workshop | ROBERT OLANDER |
| 3:00 - 3:15 P.M | Break | |
| 3:15 - 4:00 P.M. | Lockdown Techniques and Asbestos Substitutes | MARK DEMYANEK, CSP |
| 4:00 - 5:00 P.M. | Legal and Insurance Issues | STEVE FARRISH |

* Distribution of Final Course Review (in back of notebook)

# GEORGIA INSTITUTE OF TECHNOLOGY

## SUPERVISION OF ASBESTOS ABATEMENT PROJECTS: COURSE AND WORKSHOP

**FEBRUARY 5-9, 1990**
**ATLANTA, GEORGIA**
**COURSE SCHEDULE**

**FRIDAY (February 9, 1990) 8:00 A.M. - 2:15 P.M.**

| | | |
|---|---|---|
| 8:00 - 8:30 A.M. | Optional Review | BOB SCHMITTER |
| 8:30 - 9:30 A.M. | Asbestos Abatement in Industrial Settings | MICHAEL DURBIN, CIH |
| 9:30 - 9:40 A.M. | Break | |
| 9:40 - 10:40 A.M. | Cost Estimation | DON MOSES |
| 10:40 - 11:00 A.M. | Final Review | BOB SCHMITTER |
| 11:00 - 12:15 P.M. | Lunch | |
| 12:15 - 2:15 P.M. | Examination (Optional) | COURSE FACULTY |

GEORGIA INSTITUTE OF TECHNOLOGY

SUPERVISION OF ASBESTOS ABATEMENT PROJECTS:
COURSE AND WORKSHOP

FEBRUARY 5-9, 1990
ATLANTA, GEORGIA
COURSE FACULTY

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| INSTRUCTOR | TIME | TOPIC |
|---|---|---|
| Continuing Education | 8:30 - 9:00 | Registration |
| Charles W. Calmbacher | 9:00 - 9:15 | Introduction |
| Doug McCurry | 9:15 - 10:00 | Status of General Hazardous Waste Permitting: The Amendmer |
| | PART B PREPARATION | |
| John C. Nemeth | 10:00 - 10:30 | Facility Description |
| | 10:30 - 10:45 | Break |
| John C. Nemeth | 10:45 - 11:15 | Process Information |
| Kevin L. Kamperman | 11:15 - 12:00 | Waste Characteristics & Waste Analysis Plan |
| | 12:00 - 1:30 | Lunch |
| Bill Mundy | 1:30 - 2:30 | Development of Groundwater Assessment and Corrective Action Plan |
| James Mann | 2:30 - 3:15 | Procedures to Prevent Hazards and Contingency Plan |
| | 3:15 - 3:30 | Break |
| John C. Nemeth | 3:30 - 4:15 | Personnel Training |
| All Instructors | 4:15 - 5:00 | Questions & Answers |

# COURSE OUTLINE

## PART B HAZARDOUS WASTE
## PERMIT PREPARATION AND NEW PERSPECTIVES

## GEORGIA TECH RESEARCH INSTITUTE

**11 & 12 March 1986**

## DAY TWO

| INSTRUCTOR | TIME | TOPIC |
|---|---|---|
| Charles W. Calmbacher | 8:30 - 8:40 | Overview |
| Valerie Sykes | 8:40 - 9:15 | Financial Requirements |
| Jim Ussery | 9:15 - 10:00 | Closure Plan |
| Charles W. Calmbacher | 10:00 - 10:15 | Other Federal Laws & Certification |
| | 10:15 - 10:30 | Break |
| Don Parish | 10:30 - 11:30 | Container Storage Design and Tank Storage Design |
| | 11:30 - 1:00 | Lunch |
| James Mann | 1:00 - 2:00 | Underground Storage Tanks |
| John Nemeth | 2:00 - 2:45 | Case Study - Private Container Stor<br>Case Study - Private Tank Storage |
| | 2:45 - 3:00 | Break |
| Albert Langley | 3:00 - 3:45 | Case Study - Container Storage Permit |
| All Instructors | 3:45 - 4:00 | Questions & Answers |

# PART B HAZARDOUS WASTE
# PERMIT PREPARATION AND NEW PERSPECTIVES

## 11 & 12 MARCH 1986

## COURSE FACULTY

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Part B Hazardous Waste Permit Preparation and New Perspectives

| Section | Topic |
|---|---|
| 1 | Status of General Hazardous Waste Permitting: The Amendments |
| 2 | Facility Description |
| 3 | Process Information |
| 4 | Waste Characterstics & Waste Analysis Plan |
| 5 | Development of Groundwater Assessment and Corrective Action Plan |
| 6 | Procedures to Prevent Hazards and Contingency Plan |
| 7 | Personnel Training |
| 8 | Financial Requirements |
| 9 | Closure Plan |
| 10 | Other Federal Laws & Certification |
| 11 | Container Storage Design and Tank Storage Design |
| 12 | Underground Storage Tanks |
| 13 | Case Study - Private Container Storage<br>Case Study - Private Tank Storage |
| 14 | Case Study - Container Storage Permit |
| | APPENDICES |
| 15 | Reference Lists:<br><br>- Typical Part B References<br>- Recent NIOSH Publications<br>- RCRA Permit Guideline Documents |
| 16 | RCRA Completeness Checklist |
| 17 | Guidelines Document for the Classification of a Treatment/Storage Facility as a Tank |
| 18 | Wording of Financial Responsibility Instruments |

# SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)
# TITLE III: COMPLIANCE WORKSHOP

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# 6 PROJECT REVIEW SESSION AGENDA AND PARTICIPANTS

## AGENDA

ENVIRONMENTAL RESOURCE MANAGEMENT INSTITUTE AND NATIONAL ACADEMY:
CONCEPT DEVELOPMENT

12 AND 13 MARCH 1990

Sponsored by: Environmental Sciences and Technology Division
Georgia Tech Research Institute

Under Contract to: U. S. Army Construction Engineering Research Laboratory
[DACA 88-88-D-0020-0013]

| DAY ONE | | AGENDA ITEM and DISCUSSION LEADERS |
|---|---|---|
| 8:00 to 12:00 | Check In | |
| 12:00 to 1:00 | LUNCH | |
| 1:00 to 1:30 | | Introductions and Background Review--John Nemeth and John Fittipaldi |
| 1:30 to 2:00 | | Description of Target Audience--Nancy Natoli and John Fittipaldi |
| 2:00 to 3:00 | | Review of Georgia Tech Draft Product and Approach--John Nemeth and David Mayer |
| 3:00 to 3:20 | BREAK | |
| 3:20 to 4:00 | | Specific Target Audience: Discussion of Their Purview--John Nemeth and David Mayer |
| 4:00 to 5:00 | | Specific Target Audience: Discussion of Their Training Needs John Nemeth and David Mayer |
| 5:30 to 6:30 | MIXER | DINNER (on your own) |
| DAY TWO | | |
| 6:30 to 8:00 | Breakfast | |
| 8:00 to 9:00 | | Training Content: What Courses are Needed--Bob Schmitter |
| 9:00 to 10:00 | | Training Content: How Much is Enough--Kevin Downes |
| 10:00 to 10:15 | BREAK | |
| 10:15 to 11:00 | | Training Sources: Universities, The Army, Commercial--Roche Tschirhart |
| 11:00 to 12:00 | | Modes of Delivery: How Does the Appropriate Level Get Conveyed?--David Mayer |
| 12:00 to 1:30 | WORKING LUNCH AND CHECKOUTS | |
| 1:00 to 2:00 | | The ERMINA: How Can It Best Work--John Nemeth and David Mayer |
| 2:00 to 3:00 | | The ERMINA: Short-term and Long-term Strategy--John Nemeth, David Mayer, and John Fittipaldi |
| 3:00 to 3:15 | BREAK | |
| 3:15 to 4:00 | | WRAP UP--John Nemeth and John Fittipaldi |

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