Section I:

NCTC-Sponsored Courses

NCTC-Sponsored Courses

Courses listed in this section are developed and presented by the NCTC. NCTC-sponsored training is provided without tuition charge to U.S. Fish and Wildlife Service employees. In addition, FWS students taking NCTC-sponsored training at the NCTC Shepherdstown campus are not charged for room-and-board. All other individuals attending NCTC-sponsored courses are responsible for tuition and room-and-board charges. Please contact the NCTC for additional information.

ECS5206

Ecological Services Basic Training

Participants are provided with an overview of core programs of Ecological Services, including: Habitat Conservation (Federal Projects, Wetland Regulations, Mitigation Policy, Hydropower, Private Lands, Coastal Ecosystems), Environmental Contaminants, and Endangered Species. The focus of the course is on cross-program issues, outreach, and partnerships. College Credit: 2 semester hours.

Who should attend: FWS staff who have been in Ecological Services (ES) for 6 months to 2 years, or upon recommendation of supervisor.

Length: 5 days/36 hours

Objectives: Describe the major functions and responsibilities of the Endangered Species, Environmental Contaminants, and Habitat Conservation programs and how they contribute to the conservation of the Service's trust resources;

Discuss policies and legislation that guide ES programs;

Identify and describe the importance and effectiveness of outreach, partnership development, and ecosystem approaches to conservation with FWS, ES programs, and the public;

Facilitate discussion on the integration of all ES programs to create more productive and effective cross-program coordination; and

Identify and discuss programmatic and regional similarities and differences.

Availability: Annually (multiple sessions)
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

FIS0100

Fisheries Academy

This introductory course gives participants an overview of the FWS Fisheries Program and its operations. Designed for new and entry-level fisheries biologists, the course examines the program's legislation and policies, organization and responsibilities of the Washington and Regional offices, and how the Fisheries Program carries out its mission of restoring and protecting resources. College Credit: 4 semester hours.

Who should attend: New and entry-level fisheries biologists. Each Region will nominate 6 individuals (3 primary and 3 alternate) to attend this course.

Length: 9 days/72 hours

Objectives: Describe Fisheries legislation and policies and their effect on everyday work in the field;

Discuss Washington and regional office organization and functions;

List other FWS programs and perspectives;

Examine landscape-based conservation and discuss how to implement it in everyday work;

Outline and describe the FWS Budget Process, GPRA, and the Administration's Program Assessment Rating Tool (PART).

Describe a public outreach and education program;

Explain the various programs within Fisheries (National Fish Hatchery program, FW Management Assistance) and their interactions with other programs within Fisheries and Habitat Conservation.

Discuss impacts of invasive species on native species:

Identify methods to minimize impacts of invasive species; and

Investigate various career paths in the field of fisheries science.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

TEC7178

Realty Academy

The Realty Academy is designed to lay a working foundation for all FWS Realty Program professional employees. This 2-week course provides an overview of the tools, resources, and processes necessary for employees to understand their roles in fulfilling the missions of the Division of Realty and the Service. In addition, the Realty Academy is designed to build understanding and cooperation among the diverse Realty Program disciplines in the FWS. Instructors are career employees of the Service who use their institutional knowledge and case study examples to provide training in both the skills and techniques needed to continue a unified, successful Realty Program. College Credit: 3 semester hours.

Who should attend: Realty specialists, surveyors, appraisers, planners, and others working in or directly supporting the FWS Realty Program. Emphasis is on employees new to the Service. NOTE: As a prerequisite to this academy, students must have successfully completed LED5240, "U.S. Fish and Wildlife Service Employee Foundations," either separately or as part of a linked session offered the week prior to the academy.

Length: 12 days/80 hours (not including the prerequisite 36 hours for LED5240, Foundations)

Objectives: Describe the basic principles of Federal real estate law that affect the FWS;

Identify key legislation, regulations, and guidance that direct Service land acquisition and disposal policies and practices;

Describe key components and offices of the FWS Realty Program and how they fit together; and

Define and participate in major elements of a land acquisition scenario, including planning, survey, mapping, appraisal, negotiation, acquisition, relocation, and inventory.

Availability: Every other year
Contact: Realty Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7455

WLD4307

Refuge Management Academy

The Refuge Management Training Academy provides an overview of the programs, policies, and issues affecting the operation of the National Wildlife Refuge System. College Credit: 4 semester hours.

Who should attend: FWS staff new to the National Wildlife Refuge System (refuge operations specialists, wildlife biologists, outdoor recreation planners, and environmental education specialists). Note: Selection of participants is determined by a nomination process by each Regional office. Contact your Regional office to inquire how to be considered for nomination to the academy.

Length: 14 days/112 hours

Objectives: Demonstrate basic skills in communications, conflict resolution and negotiations, team problem solving, and media relations;

Identify the basic concepts and procedures for refuge compatibility determinations, refuge planning strategies, and refuge budgeting;

Describe the National Wildlife Refuge System's role and responsibilities for endangered species, migratory birds, biological diversity, fire management, wilderness management, cultural resources, public outreach, and visitor safety;

From a historical and current perspective, describe FWS philosophy, policy, legal mandates, and goals for managing the National Wildlife Refuge System; and

Identify various techniques, procedures, and approaches that a refuge could develop and use in its resource management and public outreach programs.

Availability: Spring, Summer, and Fall
Contact: Judy Sager
Branch: Conservation Land Management
Phone: 304/876 7483

OUT8140

Introduction to Visitor Services

As visitation to National Wildlife Refuges and Fish Hatcheries increases, managers are faced with the difficult challenge of protecting resources while meeting visitors' needs. This course familiarizes participants with the history, legislation, regulations, and policies related to visitor services in the FWS. Topics covered include the six priority wildlife-dependent uses that occur on refuges as defined by the Refuge Improvement Act, visitor services requirements, compatibility determinations, planning/design principles, outreach efforts, funding issues, and evaluation techniques to help participants develop visitor service plans and programs at various levels in the FWS. College Credit: 2 semester hours.

Who should attend: Anyone involved with visitor services or public use programs, including project leaders, natural resource managers, environmental educators, interpretive staff, outreach specialists, outdoor recreation planners, park rangers, and those working with community support groups.

Length: 4.5 days/32 hours

Objectives: Outline the history of visitor services in relation to current legislation, regulations, policies, and organizational structure of the FWS;

Demonstrate a working knowledge of FWS planning policy, including the development and implementation of Comprehensive Conservation and Visitor Services Plans;

Determine compatible uses and apply visitor use requirements to plans and programs at FWS field stations; and

Explain the FWS funding and budgeting process as it relates to visitor services.

Availability: Annually
Contact: Matt Gay
Division: Education Outreach
Phone: 304/876 7654

LED5240

U.S. Fish and Wildlife Service Employee Foundations

This is a one-week basic-skills course for new FWS employees. The main focus of this course is to provide skills for working with others to accomplish the mission of the Service. The course provides an introduction to the U.S. government, public service, and the U.S. Fish and Wildlife Service; an overview of FWS-related legislated mandates and FWS/conservation history; and a foundation in valuing diversity, interpersonal communications, conflict resolution, and career development. College Credit: 2 semester hours.

Who should attend: This course is mandatory for all permanent FWS employees in two-grade interval positions (i.e., GS-5/7/9/11/12/13), within their first year on the job.

New employees are strongly encouraged to complete LED5N46, the Web orientation program, prior to attending this course.

Note: This course does not take the place of a regional "New Employee Orientation."

Length: 4.5 days/36 hours

Objective: Be well grounded in FWS history, organization, and mission;

Be able to apply interpersonal skills in building professional relationships; and

Use the Individual Development Plan (IDP) and career development tools to guide development over the life of a career.

Availability: Six times a year
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7488

ECS2102

Migratory Bird Conservation — A Trust Responsibility

Enacted in 1918, the Migratory Bird Treaty Act (MBTA) is an enduring cornerstone of the nation's wildlife conservation laws. This course is designed to give participants a working knowledge of the legal and conservation implications of the MBTA, with special attention to the responsibilities of the Fish and Wildlife Service, through all of its programs, for migratory bird conservation. Partnerships and initiatives that address migratory bird conservation, in addition to other resources available, will also be discussed, providing participants an excellent overview of how they can further implement migratory bird conservation. College Credit: 1 semester hour.

Who should attend: FWS biologists, other natural resource professionals, and law enforcement personnel responsible for implementing and administering Federal agency actions that have potential to affect migratory birds.

Length: 3 days/24 hours

Objectives: The course is both an overview of the MBTA and practice applying bird conservation laws.

Understand the Service's responsibility and challenges in implementing and enforcing the MBTA and other related bird conservation regulations;

Discuss a variety of initiatives and partnerships that have been developed to address migratory bird conservation and what these partnerships are doing; and

Be familiar with existing resources and opportunities that address migratory bird conservation and know where to find more information.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3101

Environmental Contaminants Field and Laboratory Techniques

Participants will receive hands-on training in safe and proper field and laboratory techniques for collecting, handling, and preserving environmental samples for laboratory analysis. The course will cover standard procedures for sampling soil, sediment, water quality, water chemistry, vegetation, and blood and tissue sampling (fish, birds, bird eggs, mammals). Other topics will include reading and evaluating a laboratory analysis and QA/QC report, conducting field decontamination, safety procedures, and proper animal handling. The state-of-the-art techniques and instruments are used. College Credit: 2 semester hours.

Who should attend: Personnel from refuges, fisheries, or environmental quality programs that are involved in obtaining environmental samples. Participants should be prepared to learn how to euthanize laboratory animals as part of the training.

Length: 5 days/36 hours

Objectives: Conduct safe and proper handling of field samples intended for biological or chemical analysis;

Practice using advanced instruments for water quality monitoring, water chemistry, and other field samples.

Be proficient at animal handling techniques, including non-lethal tissue collection as accomplished in contaminant or health assessments; and

Evaluate the adequacy of techniques and quality control contained in reports.

Availability: Every year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3102

Amphibian Health Examinations and Disease Monitoring

The course is an overview of amphibian health and the types of diseases that occur in wild amphibians. Lecture and discussion topics will cover basic amphibian biology and recognition of health and disease, including developmental malformation identification. Hands-on lab sessions will provide experience in handling live amphibians, viewing internal anatomy, and practicing tissue collection. Principles of amphibian survey techniques will be described, especially surveys conducted to identify the occurrence of disease and malformation. Participants will also learn how to conduct surveys in ways that minimize handling stress and potential disease transmission. Participants will receive example field data forms and health/malformation field assessment forms. College Credit: 1 semester hour.

Who should attend: Anyone interested in amphibians or amphibian populations, and those involved in planning and conducting amphibian field surveys, especially surveys for disease and malformation.

Length: 3 days/24 hours

Objectives: Apply amphibian disease considerations in one's own survey work;

Discuss the importance of disease and declines in wild populations;

Demonstrate and practice techniques for amphibian handling, health assessment, anesthesia, and euthanasia; and

Practice techniques for tissue and blood collection and storage/shipping of samples.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3107

Wetland Plant Identification

This interagency course is designed to improve the ability of field staff to identify wetland plants using botanical manuals and floras. The class consists of several one-day sessions on the following groups: woody plants, including winter condition; herbaceous dicots; and grasses, sedges, and rushes, and other monocots. Lectures discuss morphology, terminology, and identification. Plants representative of that day's topic(s) are collected daily in the field and keyed out in the classroom, in both directed and individual keying exercises. College Credit: 2 semester hours.

Who should attend: Personnel involved in wetland issues. The course is taught by instructors from the FWS, Environmental Protection Agency, Natural Resources Conservation Service, and Corps of Engineers.

Length: 5 days/36 hours

Objectives: Accurately identify wetland plants to the species level by using morphological characteristics and major botanical terms;

Properly use botanical keys, including regional wetland flora keys and electronic keys;

Recognize selected plant families that commonly occur in wetlands;

Observe wetland plants in the field to reinforce plant morphological characteristics;

Demonstrate how to properly collect plant specimens, differentiating between museum and field techniques; and

Develop field notebook based on the course's lecture, lab, and field activities.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3111

Natural Resource Damage Assessment and Restoration (NRDAR)

Participants are given the tools and practical examples to initiate and conduct natural resource damage assessment and restoration activities. Sections of the Oil Pollution Act and the Comprehensive Environmental Response, Compensation, and Liability Act relevant to NRDAR are reviewed. The course includes practical exercises and is intended as a basic-level course. College Credit: 2 semester hours.

Who should attend: Personnel from natural resource trustee agencies (Federal, state, and tribes) whose responsibilities include evaluating and participating in the NRDAR process.

Length: 5 days/36 hours

Objectives: Discuss the history, policies, legislation, and practical applications that guide the NRDAR process;

Discuss and describe regulations pertinent to NRDAR;

Effectively preplan and coordinate with administrative staff, environmental contaminant specialists, trustees, responsible parties, environmental groups, and the general public;

Be an effective participant on a multi-disciplinary NRDAR team, including biologists, restoration specialists, managers, economists, attorneys, and contractors;

Conduct NRDAR activities using appropriate guidelines/regulations; and

Move the NRDAR process towards effective and complete planning for restoration of injured trust resources.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3112

Wetland Regulatory Program

This course covers the issues that emerge when biologists review permit applications issued by the Corps of Engineers under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Topics include: Corps regulation and guidance, the Service's mitigation policy, the Environmental Protection Agency's 404(b)(1) guidelines, and other topics related to permit review. The course includes a field trip and frequent discussions of some of the complex issues facing permit biologists, including mitigation. College Credit: 2 semester hours.

Who should attend: Personnel currently involved in the wetland regulatory review program.

Length: 5 days/36 hours

Objectives: Identify significant legislation, regulations, and policies used in responding to wetland regulatory issues;

Discuss the regulatory program in light of ongoing changes;

Define the scope of activities regulated, the Corps' jurisdiction, and the role of other agencies;

Define the Service mitigation policy and apply innovative mitigation techniques; and

Effectively address specific wetland issues encountered by field offices.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3115

Endangered Species Listing and Candidate Assessment

The course provides basic information about endangered species petition management, candidate assessment, conservation and monitoring, and listing determination. Case studies and interactive exercises will be used. College Credit: 2 semester hours.

Who should attend: Endangered species program employees whose duties include ESA-Section 4 listing, candidate assessment, or candidate conservation responsibilities, and those interested in this subject.

Length: 5 days/36 hours

Objectives: Identify the Service's obligations and authorities for listing species as threatened or endangered under Section 4 of the ESA;

Define a species, including distinct population segments;

Explain Service compliance responsibilities under FOIA, FACA, and APA related to candidate assessment and listing;

Describe how to establish an administrative record of actions associated with a species review for listing and/or critical habitat designation;

Describe the steps for placing and prioritizing a species on the candidate list;

Describe how pre-listing conservation, including the Policy for Evaluation of Conservation Efforts, influences the need to list species;

Describe the management of petitions to list or delist species or to designate critical habitat;

Identify the steps for determining if critical habitat is prudent and determinable; and

Describe developing an outreach strategy for the listing process.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3116

Interagency Consultation for Endangered Species

You will acquire basic information on conducting interagency consultation under Section 7 of the Endangered Species Act. We will address key information needs and procedures, with a focus on the information needs related to biological assessments and biological opinions. During lecture and discussion, we will emphasize interagency exchange of information and solutions to support species conservation. College Credit: 2 semester hours.

Who should attend: Biologists responsible for conducting project review of potential impacts to listed, proposed, or candidate species.

Length: 5 days/32 hours

Objectives: Discuss the components of interagency consultation and describe related requirements and procedures;

Describe the necessary information included in a biological assessment or biological opinion;

Describe and apply the "may affect/no effect," "jeopardy/no jeopardy," and "adverse modification" determination processes;

Describe the Section 7(a)(1) conservation obligation; and

Explain the importance of Section 7 consultation in implementing the conservation mandates of the Endangered Species Act.

Availability: Annually (multiple sessions)
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3117

Habitat Conservation Planning for Endangered Species

The course addresses the basic steps and processes regarding habitat conservation planning under Section 10(a)(1)(B) of the Endangered Species Act. Case studies and interactive exercises are used to reinforce lecture sessions. College Credit: 2 semester hours.

Who should attend: Individuals responsible for assisting in the development of habitat conservation plans.

Length: 5 days/36 hours

Objectives: Explain the legal and policy background that forms the basis of the Section 10(a)(1)(B) permit process;

Describe the roles of the Fish and Wildlife Service, the National Marine Fisheries Service, the applicant, and other parties in the Section 10(a)(1)(B) process;

Explain how to provide guidance in developing a Habitat Conservation Plan (HCP) that meets statutory and biological requirements;

Initiate and develop the Section 10(a)(1)(B) documents necessary to complete the HCP process;

List permit processing steps, from submission of the application to permit issuance;

Describe statutory permit issuance criteria and explain biological standards and FWS and NMFS policies involved in the permit issuance decision;

Identify post-issuance compliance and options for corrective actions;

Describe the role of monitoring and adaptive management in developing and implementing an HCP; and

Explain relationships among HCPs, NEPA, and Section 7.

Availability: Annually (multiple sessions)
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3118

Endangered Species Recovery Planning

Instruction covers the technical, policy, and practical aspects of recovery planning for threatened and endangered species. Topics covered include: "tour" of a recovery plan, statutory framework, purpose and steps of recovery plan development (e.g., what needs to be covered in each section of a recovery plan and how to write adequate recovery criteria), how and why to involve stakeholders, working with recovery teams, policies and guidance relevant to recovery planning, and the relationship of recovery planning to all parts of the Endangered Species Act. Case studies and exercises are included to reinforce lecture sessions. College Credit: 2 semester hours.

Who should attend: Personnel whose responsibilities include preparation of recovery plans and/or oversight of recovery teams or the recovery planning process.

Length: 5 days/32 hours

Objectives: After attending this session, students should be able to:

Define recovery, and its purpose;

Discuss the statutory requirements and administrative policies relevant to recovery planning;

Discuss the role of a recovery plan in species recovery;

Identify various means to involve stakeholders and attributes of effective recovery teams;

List and describe the components of a recovery plan; and

Identify the attributes of a successful recovery plan (i.e., one with the best chance of being successfully implemented and resulting in species recovery).

Availability: Annually (multiple sessions)
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3119

Pesticides and Fish and Wildlife Resources

This course presents an overview of the major types of pesticides that may affect fish and wildlife resources, typical routes of exposure, assessing potential risk, and environmental fate of pesticides in terrestrial and aquatic systems. Portions of Federal laws that relate to pesticide use are described. A description of current pesticide use policy and principles of integrated pest management is provided. Participants will learn procedures to evaluate non-target effects and considerations for listed species. A mock investigation is set up to practice field investigation procedures. Useful references and information sources about pesticide safety and use and fish and wildlife risk are provided. College Credit: 2 semester hours.

Who should attend: FWS staff (including endangered species biologists, refuge personnel, contaminant specialists, and law enforcement officials), and other Federal and state personnel whose responsibilities include evaluating the legal and biological implications of fish and wildlife exposure to pesticides.

Length: 5 days/36 hours

Objectives: Apply Federal laws, FWS policies, and other authorities related to safe pesticide use;

Assess risk to listed species and other trust resources;

Apply basic principles of risk assessment as they relate to pesticides;

Assess effects of contemporary and historic pesticide use; and

Complete a pesticide use permit and review the general principles of integrated pest management.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3121

Integrating NEPA into FWS Activities

This course provides instruction regarding the purpose and procedural requirements of the National Environmental Policy Act (NEPA), how NEPA affects the decision-making process involving Federal planning and actions, how to structure and review NEPA documents, and how other laws and regulations relate to NEPA. Interactive exercises are included to reinforce lecture sessions. College Credit: 2 semester hours.

Who should attend: Personnel whose job responsibilities include ensuring that their agency is in compliance with NEPA, including review of environmental documents.

Length: 4 days/32 hours

Objectives: Explain the purposes and objectives of NEPA, agency NEPA goals, and duty to comment;

Describe the purpose of NEPA documentation and differentiate between a categorical exclusion, an EA, and an EIS;

Explain the scoping process and define associated elements, including purpose, need, and proposed action;

Summarize how to plan, write, and edit environmental documents;

Describe the public review process and identify key decision documents;

Describe the agency's review process of environmental documents and list interrelated review requirements, such as FERC, ESA, FWCA, and others; and

Summarize the agency's environmental justice policies and describe the implementation of environmental justice provisions of NEPA.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3126

Principles of Environmental Toxicology

Participants review the basic principles of contaminant chemistry, including routes of exposure, fate and transport mechanisms, and metabolism and biotransformation of contaminants in organisms. Sessions describe the major types of contaminants, including metals and inorganics, hydrocarbons, PCBs, dioxins, and pesticides, as well as water quality. Topics covered for each type of contaminant include sources, modes of action, biological effects, partitioning characteristics, associations with other compounds, analytical considerations, and implications for trust resources. An overview of the current toxicological literature and information sources is provided. Pre-course reading required. College Credit: 2 semester hours.

Who should attend: Biologists with some knowledge and experience in environmental contaminants, but who have the need to broaden their expertise on the variety of contaminants present in today's environment.

Length: 5 days/36 hours

Objectives: Be able to apply the principles of environmental toxicology to your work;

Review the physical, chemical, and biological variables influencing the effects of toxicants on trust resources from the major environmental contaminants; and

Be able to articulate concerns for trust resources associated with the major contaminants.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3127

Partners for Fish and Wildlife (PFW) — Habitat Restoration

This course will help you improve skills for creating ecologically sound, cost-effective Partners for Fish and Wildlife (PFW) projects for trust resources. The major topics of the course include: setting priorities, identifying partners, identifying and selecting projects, project design and construction, funding, compliance with other Federal mandates, monitoring, and a review of the USDA's Farm Bill program. You will gain practical knowledge of the PFW program during a field exercise by working in groups to design your own project. College Credit: 2 semester hours.

Who should attend: Fish and Wildlife Service employees who are new to the PFW program and others interested in learning the fundamentals of the program.

Length: 5 days/36 hours

Objectives: Describe current techniques of habitat restoration, technical assistance, and program implementation;

Find solutions to existing problems and the means to address potential future problems pertaining to the PFW program; and

Identify emerging issues and understand their potential effects on the PFW program.

Availability: Every other year
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3128

Endangered Species Recovery Implementation—Achieving Success in Recovery

This course will enhance your ability to implement recovery of trust species and their habitats (e.g., Federal or state listed species or species of concern). We will discuss what makes conservation efforts successful. The course materials include tips on where to turn for assistance with your own recovery endeavors. Case studies, class exercises, and discussions of participants' own recovery implementation issues will supplement more structured instruction. College Credit: 2 semester hours.

Who should attend: Anyone who cares about recovering trust species and their habitats. We encourage professionals from U.S. Fish and Wildlife Service Refuges, Fisheries, Migratory Birds, and Ecological Services; other Federal natural resource agencies; states; tribes; non-governmental organizations; and local or private groups to attend.

Length: 5 days/36 hours

Objectives: Recognize your recovery implementation strengths and weaknesses and learn how to partner to make a stronger recovery implementation program;

Determine how to take existing fiscal resources and use them to leverage more support for recovery actions;

Explain how effective communication enhances recovery and devise ways to become a more effective communicator; and

Discuss the importance of recovery implementation evaluation programs and determine appropriate milestones to help measure success.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3129

Oil and Chemical Spill Response

Participants learn the FWS role in oil and chemical spills affecting FWS trust resources. Procedures are described for marine and freshwater environments. Emphasis is placed on planning for an emergency response, sample collection and handling, and coordinating the FWS response within the incident command system. Topics covered include development of area contingency plans, accessing the Oil Pollution Liability Trust Fund, health and safety requirements for spill response, wildlife rescue operations, and damage assessment. Participants with current HAZWOPER certification can obtain their required OSHA eight-hour refresher training for hazardous waste workers during this course. College Credit: 2 semester hours.

Who should attend: Natural resource personnel whose responsibilities include planning or participating in a spill response. Note: Inland and coastal sessions are given separately.

Length: 5 days/36 hours

Objectives: Describe the major types of oil products typically involved in spill events;

Practice shoreline assessment and cleanup techniques;

Apply OSHA training and safety requirements for spill response workers to a scenario;

Complete spill-response reporting and accounting procedures required by the FWS and the Department of the Interior; and

Participate in a spill drill.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3130

Advanced Plant Identification: Grasses, Sedges, Rushes, and Composites

This interagency course is designed to improve the ability of field staff to identify specific groups of wetland plants using botanical manuals and other flora. Lectures discuss morphology, terminology, and identification. Participants collect representative plants in the field and, back in the classroom, log them in using directed and individual keying exercises. The course is taught by instructors from the Fish and Wildlife Service, Environmental Protection Agency, Natural Resources Conservation Service, and Corps of Engineers. College Credit: 2 semester hours.

Who should attend: Staff involved in wetland issues, such as wetland identification and delineation, wetland restoration and enhancement, wetland mitigation, and wetland habitat management. A general wetland plant identification course is a prerequisite.

Length: 5 days/36 hours

Objectives: Identify the major botanical terms and morphological characteristics of wetland grasses, sedges, rushes, and members of the Compositae family;

Properly use botanical keys, regional wetland floras, and electronic keys;

Identify major representative wetland plants in wetland communities in the field;

Observe wetland plants in the field and document observations to reinforce plant morphological characteristics; and

Properly collect specimens for future identification and reference.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3132

Federal Activities and the Fish and Wildlife Coordination Act (FWCA)

The course familiarizes participants with the Service's responsibilities and opportunities under the FWCA. Course content focuses on the relationship of the FWCA to other legislation, the types of assistance the Service provides, standard formats for FWCA reports, and methods for developing project costs, cooperative agreements, and project recommendations. The course includes practical exercises. College Credit: 2 semester hours.

Who should attend: Staff with responsibilities for evaluating water resource development projects and other Federal activities under the FWCA and for preparing FWCA reports and recommendations.

Length: 5 days/36 hours

Objectives: Describe the general spirit and intent of the FWCA;

Summarize the Service's role and opportunities to influence water resource development projects;

List the four basic requirements of the FWCA process and their application to Federal activities; and

Identify the basic content and purpose of FWCA reports.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3133

Advanced Natural Resource Damage Assessment and Restoration Workshop

The course is designed to bring together technical, legal, economic, and policy experts to provide participants a comprehensive understanding of the NRDAR program's policies and structure, as well as the basics of the science involved in sampling, analysis, and data management for a case. Also covers the process of developing a restoration plan. College Credit: 2 semester hours.

Who should attend: Personnel from Department of Interior who have completed the basic "Natural Resource Damage Assessment and Restoration" course (ECS3111) and are involved in damage assessment and restoration activities.

Length: 5 days/36 hours

Objectives: Analyze injury assessment procedures/injury determination;

Learn the considerations for negotiated settlements;

Explain case development, assessment issues, and funding strategies;

Practice claim presentations; and

Analyze and gauge success of restoration planning and implementation.

Availability: Every other year
CContact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS 3134

Monitoring and Adaptive Management for Endangered Species Conservation

The purpose of this course is to learn and practice the skills necessary for using adaptive management, compliance monitoring, status and trend monitoring, and cause and effect monitoring for the purposes of recovering and delisting endangered species in compliance with the ESA. College Credit: 2 semester hours.

Who should attend: Personnel whose responsibilities include implementation of the Endangered Species Act, particularly candidate conservation, recovery, interagency consultation, and HCP. Participants should have taken "Scientific Principles and Techniques for Endangered Species Conservation" (ECS3138) or a similar college course.

Length: 5 days/36 hours

Objectives: Describe monitoring and adaptive management;

Discuss the relationships of monitoring and adaptive management mandates to the ultimate goal of endangered species recovery and delisting;

Identify requirements and opportunities to use monitoring and adaptive management within the ESA;

Determine the questions to ask for monitoring all aspects of candidate conservation, consultation, HCP, and recovery efforts;

Design an analysis that links the sampling design to the questions;

List and describe the steps of a conceptual framework of monitoring and adaptive management;

Determine what parameters to measure, which measuring techniques are applicable, and how to use these techniques; and

Assess how to ensure quality control, manage data, and apply results.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3135

Ecological Risk Assessment

This course presents an overview of the basic concepts of ecological risk assessment commonly addressed during review of Comprehensive Environmental Response, Compensation, and Liability Act and Resource Conservation and Recovery Act projects.

Who should attend: Personnel from FWS (including environmental contaminants specialists and Refuge biologists) and other DOI Federal and State personnel working on projects that require a practical understanding of ecological risk assessment and the environmental decision-making process.

Length: 5 days/36 hours

Objectives: Identify uses, benefits, and limitations of ecological risk assessments;

Evaluate the suitability of the assessment and measurement endpoints and the overall problem formulation to maximize protection of potentially affected natural resources;

Identify the data necessary to describe the environmental setting;

Using data on the nature and extent of contamination, determine data gaps and quality, and describe the steps used to develop a list of contaminants of concern;

Integrate information from the environmental setting and contaminant of concern distribution to develop a conceptual model;

Use the conceptual model to select suitable assessment and measurement endpoints and determine the applicability of exposure models;

Using information from the analysis phase, interpret validity of data, methods, and results used to characterize the exposure and effects portions of an ecological risk assessment; and

Evaluate the integration of the exposure and effects assessment to calculate and characterize risk.

Availability: Annually (multiple sessions)
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3137

Conserving Endangered Species on Non-Federal Lands

In this course, you will learn about public, private, and non-profit approaches to conserving endangered species on private, Tribal, state, and other non-Federal lands. We will cover the role of non-Federal lands in the conservation of endangered species and Endangered Species Act policies and procedures that contribute to recovery of listed and candidate species on these lands. We will review available tools, including safe harbor and candidate conservation agreements, the habitat conservation planning process, conservation easements, conservation banking, landowner incentives, and the Partners for Fish and Wildlife program. Case studies and class discussions on the use of different approaches will be integral parts of this course. College Credit: 2 semester hours.

Who should attend: Individuals from public, private, and non-profit organizations who are interested in conserving endangered species on non-Federal lands.

Length: 5 days/36 hours

Objectives: Discuss the roles of landowners, land managers, agency representatives, and others in conserving endangered species on non-Federal lands;

Compare and contrast different tools and policies available for conserving endangered species on non-Federal lands; and

Identify opportunities to foster the development of partnerships between individuals and organizations interested in conserving endangered species on non-Federal lands.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3138

Scientific Principles and Techniques for Endangered Species Conservation

This course helps participants apply the principles and techniques of conservation biology to the implementation of the Endangered Species Act. Lecture sessions are reinforced using computer modeling, as well as case illustrations and critiques. College Credit: 2 semester hours.

Who should attend: Federal biologists whose responsibilities require the application of scientific principles in the implementation of the Endangered Species Act, especially Sections 4, 7, and 10. Participants should have a solid understanding of conservation biology concepts or have taken the NCTC course "Conservation Biology: An Introduction" (WLD2101), or at least one college course in conservation biology.

Length: 5 days/32 hours

Objectives: Compare and contrast the conservation biology tools associated with genetics, demography, population viability models, landscape-level planning, monitoring, adaptive management, and decision analysis;

Select and apply appropriate techniques for genetic assessments, population viability analysis, landscape design, monitoring, adaptive management, and decision analysis for a particular Endangered Species Act problem; and

Explain the techniques involved in making endangered species conservation recommendations for decision-makers, how and when they can be applied, and their strengths and weaknesses.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3139

ESA Synopsis/Update

We have distilled the primary points and common themes from each of the existing week-long endangered species courses (listing and candidate assessment, recovery planning, recovery implementation, interagency consultation, and habitat conservation planning) and condensed them into this 1-week course. We discuss how the different Endangered Species Act (ESA) sections relate to each other and will emphasize new and pending regulations and policies in each of the subject areas. We use case studies and group discussion extensively to convey course content. College credit: 2 semester hours.

Who should attend: Managers and others needing a broad overview of ESA regulations, policies, and recent updates.

Length: 5 days/36 hours

Objectives: Discuss the basic elements of candidate conservation, listing, recovery planning, recovery implementation, interagency consultation, and habitat conservation planning;

Describe the ways in which these different ESA processes relate to each other; and

Explain recent policy changes or issues in each of the subject areas.

Availability: Annually (multiple sessions)
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS 3141

Hydropower Projects: Roles and Responsibilities

The course focuses on developing the skills and strategies to effectively protect, enhance, restore, and mitigate fish and wildlife resources affected by hydroelectric power developments. Topics include: defining technical terms and technology, overview of all Federal Energy Regulatory Commission (FERC) licensing processes, explanation of Department of Interior internal administrative policies, guidance, and coordination, and review and discussion of complex issues facing field biologists in the licensing process. These discussions include relevant court cases, the administrative record, the scope of project analysis, and dam decommissioning. College Credit: 2 semester hours.

Who should attend: This course is designed for natural resource agency personnel whose roles and responsibilities are related to hydropower project review and licensing authorized by the FERC.

Length: 5 days/36 hours

Objectives: Explain the Department of Interior's authorities, roles, and responsibilities pertaining to hydropower licensing and the FERC regulatory process;

Understand relevant technology and terminology;

Identify resources issues, information needs, and environmental impacts associated with project development and operation;

Formulate effective recommendations, terms and conditions, and prescriptions;

Compile and submit a supporting administrative record;

Apply strategies for working effectively in the hydropower process; and

Implement internal departmental administrative policies, guidance, and coordination.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3142

Principles of Habitat Assessment

The course focuses on the concepts of habitat assessments used by the environmental community to determine specific habitat functions and the potential impacts due to project activities. Methods and models used for habitat assessments will be summarized and their utility for specific applications will be discussed. Case studies and field exercises will be used to illustrate concepts and applications. College Credit: 2 semester hours.

Who should attend: Personnel involved in selecting, applying, and reviewing habitat assessment methods associated with specific projects. Relevant applications include management plans, impact assessments and associated mitigation determinations, restoration designs, and monitoring.

Length: 4 days/32 hours

Objectives: Describe the concepts of habitat and habitat modeling;

Discuss, compare, and contrast habitat assessment methods;

Determine which methods are appropriate for evaluating specific types of projects; and

Determine the documentation needed to support a habitat assessment.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3143

Natural Resource Economics for Non-Economists

An overview of the basic concepts and methods of resource economics and their application to a variety of Interior Department activities, including critical habitat designation for endangered species, hydropower relicensing, natural resource damage assessment, and valuation of natural resource assets such as refuges and hatcheries. Topics include the concepts of scarcity and opportunity cost; basics of supply and demand; market failures of benefit-cost, cost-effectiveness, and impact analyses; methods used to calculate benefits, such as contingent valuation, conjoint analysis, and travel cost; and an overview of economics in the regulatory process. College Credit: 1 semester hour.

Who should attend: Federal and state personnel who draft regulations, conduct assessments with an economics component, manage investments into natural resource assets, and/or review contractor-produced economics products.

Length: 3 days/24 hours

Objectives: Understand the basic foundations of economics and how they apply to a wide range of environmental and resource problems;

Understand the tradeoffs involved in natural resource and environmental decision-making;

Become familiar with a variety of environmental benefit estimation techniques;

Become familiar with the language and concepts of economics so as to communicate effectively;

Plan projects more effectively so that efforts result in the appropriate biological inputs needed for economic analysis; and

Differentiate between a financial analysis and a true economic analysis of environmental policy.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3144

Safe Harbor Agreements/ Candidate Conservation Agreements with Assurances

We cover Fish and Wildlife Service regulations, policies, and guidance on Safe Harbor Agreements and Candidate Conservation Agreements with Assurances, including the impetus for developing these policies, basic components of the agreements, how they can support ESA recovery efforts, appropriate situations in which to use them, and how to evaluate their effectiveness. We use case studies and group exercises to illustrate course concepts. College credit: 2 semester hours.

Who should attend: FWS biologists and others responsible for developing, implementing, and/or reviewing Safe Harbor Agreements and Candidate Conservation Agreements with Assurances.

Length: 5 days/36 hours

Objectives: Discuss the basic elements of FWS regulations, policies, and guidance on Safe Harbor Agreements and Candidate Conservation Agreements with Assurances;

Discuss the different phases and requirements of the permitting process;

Describe how these policies can be used to improve the status of listed and candidate species; and

Determine how these agreements can be implemented in different situations.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3146

Strategic Conservation Planning Using a Green Infrastructure Approach

Green infrastructure represents an interconnected network of natural areas and working landscapes that support native species, maintain ecological processes, sustain air and water resources, and contribute to the health and quality of life for citizens. Through lecture, case studies, and class exercises, this course will introduce participants to the concepts and values of green infrastructure; to innovative tools and techniques for planning, designing, and implementing green infrastructure networks; and to successful approaches for integrating green infrastructure into local, regional, state, and national land use plans, policies, practices, land protection strategies, watershed planning, and community decisions. College Credit: 1 semester hour.

Who should attend: Individuals at the local, state, and national level who are engaged in conservation planning, land protection, and management; individuals or organizations who influence decisions regarding the use of land; and stakeholders in all land use decisions.

Length: 5 days/36 hours

Objectives: Describe green infrastructure concepts and principles and explain their ecological and social benefits;

Discuss techniques for planning and designing green infrastructure networks at the statewide, regional, and local levels;

Describe options for financing and implementing green infrastructure plans; and

Compare and contrast successful approaches for integrating green infrastructure into conservation planning and land protection.

This course is offered by: The Conservation Fund, Maryland DNR, the USDA Forest Service, and USFWS/NCTC [also listed as CLN3146 on page 130].

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS 3147

Habitat Restoration Techniques Workshop

We will compare various types of habitat restoration and restoration techniques, including discussions of associated successes and failures. You will exchange knowledge and skills on effective habitat restoration techniques through presentations on your own projects and group discussions. We will begin the workshop with presentations and discussions on planning and implementing habitat restoration at the watershed or regional scale. The remainder of the workshop will feature presentations by participants on specific projects and by invited speakers. College Credit: 1 semester hour.

Who should attend: Employees of the Fish and Wildlife Service and other agencies and organizations actively involved in conducting habitat restoration projects.

Length: 3 days/24 hours

Objectives: Compare current techniques and types of habitat restoration throughout the nation, including their successes and challenges;

Find solutions to existing habitat restoration problems in different habitat types, and ways to address potential future problems pertaining to restoration efforts;

Identify emerging habitat restoration issues and understand their potential effects on project planning and implementation; and

Discuss application of habitat restoration techniques on a watershed or regional scale.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3148

Applied Conservation Genetics

This course helps participants apply genetic principles and techniques to species conservation and management decisions. Particular emphasis will be given to the role of genetics in determining appropriate management units and the major schools of thought in the conservation genetics community. Group exercises and case studies covering an array of taxonomic groups will be used to introduce and elucidate concepts, applications, and controversies. College Credit: 2 semester hours.

Who should attend: Personnel who are responsible for integrating genetic information with management programs. Participants should have a solid understanding of genetic principles.

Length: 5 days/36 hours

Objectives: Explain important concepts, such as population genetics, molecular systematics, and evolutionary theory;

Introduce an array of contemporary molecular genetic analytical techniques, including the role of each in delineating systematics, phylogeography, population structure, and kinship/parentage. Appropriate data analysis procedures and interpretation will be explained;

Describe the application of genetic information to identify appropriate units of management;

Compare and contrast the various definitions proposed for determining distinct population segments, including evolutionarily significant units;

Discuss current controversies, including the conflict between population genetics and molecular systematics regarding the identification of distinct population segments; and

Discuss the limitations of genetic analyses relative to various management issues.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3149

Principles of Modeling for Conservation Planning and Analysis

Participants will acquire knowledge of the techniques and concepts of modeling and decision analysis for natural resources. Session topics include introductions to simulation modeling, decision analysis, expert systems, ecosystem modeling, and spatially explicit models and their use in making conservation decisions. Lectures and discussions include hands-on experience with spreadsheets that illustrate the values, limitations, and appropriate applications of models. College Credit: 2 semester hours.

Who should attend: Biologists and decision-makers involved in preparing or evaluating documents supporting decisions on conservation issues. Participants are not required to be skilled in mathematics or computing, although familiarity with how the results of models can be applied is beneficial.

Length: 5 days/36 hours

Objectives: Discover how to use models in planning for ecological and conservation biology decisions with defensible results;

Discuss the modeling process, terminology, use of deterministic and stochastic models, what to leave out of a model, scale and resolution, age- or state-structured models, and how to deal with uncertainty in making conservation decisions;

Learn how to use decision trees, approach decision analysis under uncertainty, and incorporate a pragmatic modeling approach to data collection methods and data analysis;

Learn how to design management-oriented modeling environments using short- and long-term data sets and qualitative models, how to address adaptive management, and where GIS can be useful; and

Discover how to use simple models for decision analysis.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3150

Advanced Interagency Consultation for Endangered Species

Participants will discuss advanced aspects of interagency consultation under Section 7 of the Endangered Species Act with a focus on how to conduct complex consultations through the use of a structured, analytical framework. Lecture and discussions emphasize application of principles of population ecology, use of best available information, and consistency and adherence to statute, regulation, policy, and case law regarding the implementation of Section 7 of the Endangered Species Act. College Credit: 2 semester hours

Who should attend: Advanced consultation practitioners and decision-makers from the Service, NMFS, and action agencies. Completion of NCTC's "Interagency Consultation for Endangered Species" (ECS3116) course is highly recommended.

Course Length: 5 days/36 hours

Objectives: Enhance consistency in the implementation of the Section 7 consultation program;

Discuss how to use a structured analytical process to conduct interagency consultations, how to apply existing scientific principles and tools, how to prepare a well reasoned and scientifically defensible analysis of effects, and how to maintain a supporting administrative record;

Discuss how to search for and evaluate the adequacy of evidence, how to incorporate the best available scientific and commercial information into biological opinions, how to apply principles of population ecology and biology, and how to deal with uncertainty;

Discuss application of "may affect/no effect," "jeopardy/no jeopardy," and "adverse modification/no adverse modification" standards using principles of conservation biology and other sources of information; and

Discuss the relationships among Federal mandates for interagency consultation with other conservation actions mandated under the Endangered Species Act.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3151

Principles of Integrated Pest Management

This course presents the fundamentals of integrated pest management (IPM) and the decision-making process that reduces risk to natural resources, the public, and the environment from pests and pest management-related strategies. The IPM process incorporates the use of different management tools to formulate the best management strategy when managing pests on and off refuges. In practice, IPM incorporates monitoring injury levels and treatment strategies in an overall decision-making process tailored to individual pest problems. Useful references and information sources about IPM are provided. College Credit: 2 semester hours.

Who should attend: Biologists, environmental contaminant specialists, and refuge and land managers who have assigned duties in IPM will benefit from this course.

Length: 5 days/36 hours

Objectives: Understand and describe the key components of the IPM decision-making process;

Demonstrate an understanding of the principles and techniques of IPM in solving a variety of pest management problems (invertebrate, vertebrate, and vegetation issues);

Given specific conditions, write an effective and comprehensive IPM plan tailored for a specific pest; and

Solve a variety of pest management problems in the field.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

ECS3152

Developing a Biological Assessment

Under Section 7 of the Endangered Species Act, Federal agencies are required to describe the potential effects of their activities on threatened and endangered species in a written report, called a Biological Assessment (BA). The BA development process may be improved if the natural resource agency (typically the Fish and Wildlife Service or NOAA Fisheries) concisely describes the interagency consultation process and necessary elements of a BA to the action agency. This course is designed to provide instruction and materials on the BA development process to local action agencies. Emphasis will be placed on efficiently developing BAs that provide adequate information for the natural resource agencies. College Credit: 1 semester hour.

Who should attend: Federal employees, and their representatives, who provide Section 7 biological assessments to the Fish and Wildlife Service and NOAA Fisheries.

Length: 2 days/16 hours

Objectives: Provide participants with the information necessary to develop BAs so they can more easily:

a) develop a thorough project description,
b) determine the project action area,
c) identify direct and indirect effects to species and critical habitat, as described in the ESA, and
d) conduct science-based effects determinations; and

Shorten consultation time by providing federal agencies the information to facilitate the consultation process.

Availability: TBA
Location: Regionally, based on demand
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3153

Cumulative Effects Assessment

Cumulative effects are defined as impacts on the environment that result from the incremental effects of a proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. This course presents the concepts and approaches for incorporating cumulative effects considerations into environmental impact assessments. Emphasis will be placed on the relationships of cumulative effects issues to National Environmental Policy Act (NEPA) documents, transportation projects, and the review of wetland permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Case studies and group discussions will be used to illustrate concepts and applications. College Credit: 1 semester hour.

Who should attend: Personnel involved in the evaluation of cumulative effects and the integration of these effects into the environmental impact assessment process. Participants should have a good understanding of NEPA.

Length: 4 days/28 hours

Objectives: Explain principles and procedures for cumulative effects assessment and how to delineate spatial and temporal boundaries;

Define baseline conditions;

Determine reasonably foreseeable future actions;

Explain methods for identifying cumulative effects;

Apply predictive methods; and

Discuss mitigation and monitoring of cumulative effects.

Availability: TBA
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3155

Survey Methods for Frog Abnormalities on National Wildlife Refuges

This set of training materials is for personnel who are designing or conducting frog malformation surveys on National Wildlife Refuges. One manual describes the phenomena of frog malformations, contains standard procedures for malformed frog surveys, and provides equipment lists and typical field forms for data collection. Another manual is a pictorial field guide to malformations of frogs and toads. A video is provided that demonstrates field survey, sample handling, and shipping techniques and describes use of the field forms provided in the manual. To enroll in this self-study course, submit an application, with your a mailing address, just as you would for any other course. There is no charge for FWS employees; all others pay $50.00.

Who should participate: Anyone designing or conducting a field survey to determine occurrence of frog malformations on National Wildlife Refuges. Principles described would also have applications for more general amphibian surveys at any location.

Length: 0.5 day/4 hours, two self-study manuals and video (Request DVD or VHS format)

Availability: Correspondence
Contact: Roxanne May
Branch: Conservation Science and Policy Training
Phone: 304/876 7443

ECS3159

Decision Analysis for Natural Resources Management

This workshop provides participants with skills required to develop structured approaches to natural resources decisions. Participants will be exposed to the concepts of critical thinking, logic, and decision analysis. The workshop emphasizes experiential learning combining mentoring, lectures, exercises, case illustrations, and discussion. College Credit: 2 semester hours.

Who should attend: Biologists, managers, and decision-makers with the responsibility to prepare, evaluate, or make decisions using scientifically based natural resources information. Workshop content is geared toward assisting biologists and managers working on complex problems involving uncertainty and challenging decisions.

Length: 5 days/36 hours

Objectives: Understand the concepts and demonstrate the application of decision analysis and critical thinking techniques by providing participants with knowledge to deconstruct problems, analyze information, express uncertainty and use methods for addressing uncertainty in decisions, reach defensible conclusions, and prepare documents that describe process and reasoning that supports decisions;

Understand various decision tools to fit different decision problems, such as decision trees, multiple objective ranking techniques, and using expert panels.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS/CLN 3161

How to Plan and Deliver Green Infrastructure Training

The course will provide practitioners involved in strategic conservation planning with the skills and tools to design and deliver green infrastructure (GI) training events for diverse audiences.

Participants of this course will receive the knowledge and skills to design, facilitate, and champion the delivery of a tailored workshop. As participants design their event, assistance will be available from The Conservation Fund and the FWS/NCTC for successful delivery.

Who should attend: Individuals at the local, state, and national level who are engaged in conservation planning, land protection, and management; individuals or organizations who influence these decisions; and stakeholders.

Prerequisite: Participants are required to take "Strategic Conservation Planning Using a Green Infrastructure Approach" (ECS/CLN 3146)— or comparable training, to be accepted into this course.

Length: 4.5 days/36 hours

Objectives: Provide an overview of instructional design and delivery techniques;

Discuss methods and opportunities for adapting the national course to a local or regional audience; and

Review the tasks and components involved in organizing and delivering a GI educational training event.

This course is offered by: The Conservation Fund and FWS/NCTC. [Also listed as CLN3161 on page 130].

Availability: Annually
Contact: Mary Kimble
Branch: Environmental Conservation
Phone: 304/876 7449

ECS3162

Wildland Fire Workshop for Consultation Biologists

Participants will receive an overview of fire-related policies that may affect Endangered Species Act (ESA) Section 7 consultations. Students will learn about wildland fire and fire management activities that action agencies typically submit for consultation, such as fuels treatment, fire suppression activities and rehabilitation/ restoration activities. The effects of these activities on the environment will also be explored, discussing how they may best influence those activities for the conservation of listed species and critical habitat. An introduction to fire behavior and fire regimes will be presented in addition to an overview of risk assessment strategies.

Who should attend: Consultation biologists working on fire projects (fuels reduction, emergency consultation on fire suppression and rehab/restoration) with minimal knowledge of fire ecology, behavior, and fire effects. The participant should have a biology/ecology background and basic ESA Section 7 experience.

Prerequisites: Participants should possess the knowledge and skills gained through attendance of a basic ESA Section 7 training course, or similar knowledge gained through experience.

Length: 5 days/32 hours

Availability: By request
Branch: Conservation Science and Policy Training
Contact: Gary Schetrompf
Phone: 304/876 7255

ECS3163

Applied Plant Ecology

This course will introduce practitioners to ecological principles and areas of current research in plant ecology so that they can apply these concepts to management of National Wildlife Refuge System lands or other Federal lands. The ecological and evolutionary relationships among plant structure, function, and the environment, and how these relate to management decisions on the land will be stressed. Specific topics will include: plant response to low water and excess water conditions, global climate change, spatial patchiness, and non-native competition. Plant interactions with fire, pollinators, herbivores, and pathogens and community population dynamics will be covered. Using insights from research and long-term monitoring studies of vegetation, ecological management case studies will be presented. A field trip will include practice with designing management protocols for vegetative communities. College Credit: 2 semester hours.

Who should attend: Biologists, refuge and land managers, and others who need additional botanical expertise.

Length: 5 days/36 hours

Objectives: Demonstrate an understanding of the principles of plant ecology and how these apply to your land base;

Describe how a changing environment affects plant life and ecological interactions; and

Demonstrate an understanding of how individual plants, populations, and communities adapt, respond, and change over time.

Availability: Every other year
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3166

Habitat Equivalency Analysis (HEA) Workshop

The aim of the workshop is for participants to be able to use the Habitat Equivalency Analysis (HEA) software as a tool to provide better estimates of habitat loss for a trust resource project. The theory, applications, pros and cons of using the HEA model to scale natural resource impacts will be discussed. Case histories in which HEA was used and ecological metrics were developed will be discussed. Students will bring their own laptops (or they will be provided) for hands-on experience manipulating the model and completing real-world exercises. The workshop will be tailored to fit the needs of the region to assist managers and technical staff with pertinent habitat examples or field visits.

Who should attend: Each session of this workshop will be tailored to the region where it is held. Biologists assigned to NRDAR cases, OPA oil spill cases, FWS coastal program staff, and refuge staff would be interested in this workshop.

Prerequisites: Must be familiar with situations and circumstances in which agencies attempt to mitigate or restore natural resources that are affected or lost through human actions.

Length: 3 days/24 hours

Objectives: At the end of the workshop participants will be able to:

Discuss the relative positive and negative aspects of applying the HEA model to their natural resource losses;

Apply the appropriate ecological metrics required in the HEA modeling;

Demonstrate how the model treats ecological parameters and how inputs affect outputs; and

Develop a plan for collecting data and applying HEA as a tool in a CERCLA, OPA, or other similar natural resource injury/loss.

Availability: By request
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3167

Critical Writing Skills Development

This course is designed for those who are competent in basic writing skills, but need to engage in critical thinking strategies to make policy and science writing clear, well-organized, persuasive, and logical. Clearly written policy, regulations, plans, and reports can reduce our burden because we don't have to deal with the consequences of unclear communication with the public.

During the three-day course, you will have an opportunity to practice techniques that relate critical thinking to writing. Instructors will provide evaluation of writing samples in order to identify weaknesses in writing and work on improving exactly what you need.

Following the course, your writing skills development continues using on-line materials, self-paced reading, and workbooks to influence your writing for the long term.

Who should attend: Anyone engaged in science and policy writing.

Length: 3 days/24 hours

Objectives: Develop, organize, and link ideas into clear and persuasive arguments;

Write well-organized paragraphs and arrange an effective sequencing for paragraphs;

Apply techniques that make writing more analytical, reasoned, and understandable; and

Differentiate between fact and opinion, identify author bias and rhetoric, develop inferential skills, and recognize logical fallacies and faulty reasoning.

Availability: Annually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

ECS3169

Incident Command System

Our Incident Command System courses are compliant with NIMS (National Incident Management System) from the Homeland Security Presidential Directive (HSPD-5) and meet the baseline training requirements for anyone involved in emergency planning, response, or recovery efforts. Our version of these courses features wildlife examples and exercises specific to the mission of the FWS.

IS-100, Introduction to the Incident Command System, introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. This course describes the history, features and principles, and organizational structure of the Incident Command System. It also explains the relationship between ICS and NIMS.

IS-200, Basic Incident Command System, provides training on and resources for personnel who are likely to assume a supervisory position within the ICS. The primary target audiences are response personnel at the supervisory level.

Who should attend: The target audience is biologists, managers, and public relations staff who may be involved in incidents on behalf of the agency.

Length: 3 days

Availability: On request
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

CSP1352

Aquatic Animal Health

This course covers a variety of health topics primarily related to finfish, but may also address mollusks, crustaceans, and amphibians. Instruction will be provided on basic and advanced methodology of diagnosis of parasites, bacteria, and viruses. Current legal disease treatment regimes and potential future treatments under research will be presented. A range of topics on the care and use of animals, including ethical treatment, recognizing stress, anesthesia, and euthanasia, is included. Both lecture and laboratory sessions will be used to instruct diagnostic test interpretation. College Credit: 3 semester hours.

Who should attend: Personnel from Fish and Wildlife Service (including fishery biologist, fish and wildlife biologist, environmental contaminants specialists, fish health biologists), other Department of the Interior Federal and state personnel requiring a practical understanding of aquatic animal health principles.

Prerequisite: A bachelor's degree

Length: 5 days/38 hours as well as pre- and post-course assignments.

Objectives: Discuss the standard diagnostics techniques and interpretation of the tests;

Collect tissue samples for molecular analysis and interpretation;

Evaluate risk assessment tools used in the movement of aquatic animals;

Identify emerging diseases and potential zoonotics;

Identify effects of organic and inorganic environmental contaminants;

Review the policies, and regulations of AVMA, AFS, FWS, and APHIS.

Practice non-lethal anesthesia, diagnostic tests, and venipuncture techniques; and

List concepts to ensure animal welfare needs.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS0200

Adaptive Community-based Conservation

This course presents an integrated ecosystem approach to conservation. Guiding principles of conservation biology, particularly landscape ecology and conservation planning, are discussed and developed into an implementation framework. The course integrates ecological theory and application, theory and practice of public involvement, and adaptive management. Participants learn strategic methods by which to implement ecological principles through comprehensive class exercises using a hypothetical but realistic ecosystem conservation scenario. College Credit: 2 semester hours.

Who should attend: Biologists, land managers, planners, and policy-makers.

Length: 5 days/36 hours

Objectives: Describe genetic, population, species, and ecosystem concepts in biodiversity management;

Employ the population- and community-level approaches to ecosystem conservation;

Describe various characteristics of landscape structure;

Compare and contrast traditional and ecosystem management approaches;

Use adaptive management to implement ecosystem management;

Incorporate stakeholder involvement and participatory techniques in ecosystem conservation;

Employ strategic thinking in conservation issues; and

Describe a conceptual approach to managing ecosystems that includes human communities, ecology, and regulatory agencies.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS1000

Fisheries Information System (FIS)

Participants in this course will learn why and how to use the new, Web-based Fisheries Information System (FIS) database as a data tracking and management tool for fisheries activities in the U.S. Fish and Wildlife Service. The course is taught through a variety of instructional methods, including lecture, discussion, and slide presentations, with emphasis on hands-on learning in the computer lab. College Credit: 1 semester hour.

Who should attend: Any FWS employee involved in the Fisheries Program.

Length: 2 days/16 hours

Objectives: Describe the purpose of the Fisheries Information System and identify what FIS tracks for your facility;

Describe "what's new" in the Web-based FIS, including an overview of FIS's new "home" as a module within the Environmental Conservation Online System (ECOS);

Demonstrate how FIS benefits your station and how to create and use Station Profiles;

Describe the connection between the FIS data, performance measures and the Fisheries Strategic Plan, and the budget formulation process;

Demonstrate how to quickly navigate the system, including hands-on training and "quick tricks" to speed up data entry;

Demonstrate how to print "canned" output reports as well as create original ones; and

Introduce online FIS tools and guidance, such as tutorials, "Help Desk," and standard business practices for FIS.

Availability: As needed.
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS1100

Coldwater Fish Culture

This is a basic course covering the principles, concepts, and methods used in intensive (primarily Salmonid) fish culture. Applications of growth and carrying capacity models, fish feed projections and ordering, lot history development, and fish culture methods will be provided through case studies and problem solving.

Who should attend: Fishery biologists, fish culturists, biological technicians, aquatic animal husbandry caretakers and other non-supervisory hatchery employees with less than 5 years of work experience.

Length: ~~5 days/36 hours~~
9 days/72 hours

Objectives: Discuss the differences between various formulas used by fish culturists for routine hatchery practices;

Describe the common fish production methods for all life stages;

Define terms commonly used in salmonid fish culture;

Describe the effects of water quality as they relate to coldwater fish physiology and health, and how these effects can be manipulated;

Describe the principal sources of stress its adverse effects on fish in culture systems;

Describe several fish disease prevention and control measures;

Describe the major nutritional requirements of coldwater fish;

Explain the importance of genetic principles to a brood stock;

Apply the theory behind traditional hatchery management practices; and

Discuss objectives for various aquaculture programs.

Availability: Annually (multiple sessions)
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS1140

Warm and Cool Water Fish Culture

This course is designed to familiarize participants with the basic principles and methods of production of warm and cool water fish species, including largemouth bass, bluegill, channel catfish, walleye, northern pike, striped bass and their hybrids, sturgeon, paddlefish, muskellunge, and forage species. Laboratory sessions will address water quality analysis, fish health assessments, and zooplankton sampling and identification.

Who should attend: Any fisheries worker

Length: 5 days/36 hours

Objectives: Discuss water chemistry analyses and corrective measures for optimum water quality;

Correct problems in the pond environment resulting in low oxygen, high metabolic waste, or increased vegetation growth;

Recognize common fish disease signs;

Perform a fish necropsy and health assessment;

Collect, identify, enumerate, and describe life histories of various zooplankton common in fish ponds;

Manage pond water quality, vegetation, and plankton populations;

Calculate feeding levels and growth rates based on weights and numbers of fry, fingerlings, and adults;

Describe several fish disease prevention and control measures;

Describe fish culture methods for covered species;

Maintain hatchery production records; and

Harvest, hold, and transport fish in good condition. Calculate pond and tank disease treatments.

Availability: Semi-Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS1150

Introduction to Fish Health

This course is a beginning level, introductory program that familiarizes participants with the signs, causes, control, and prevention of infectious and noninfectious fish diseases.

Who should attend: This course is designed for fisheries biologists, hatchery managers, fish health biologists, or wildlife biologists interested in fish health techniques.

Length: 5 days/36 hours

Objectives: Recognize and identify the external or gross signs of the more common fish diseases and parasites;

Stain slides for preliminary identification of common disease organisms;

Isolate and culture some disease organisms;

Calculate dosages or treatment levels;

Properly care for and package moribund or dead fish as specimens for shipment to diagnostic laboratories; and

Describe the causes and effects of fish diseases.

Availability: Annually (multiple sessions)
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS1200

Imperiled Aquatic Species Restoration and Recovery

Participants will learn about policies that impact imperiled aquatic species restoration or recovery plans. The role of propagation of imperiled species and its importance to habitat requirements and life history information will be described. Habitat requirements necessary for specific refugia system design of aquatic species will be presented.

Who should attend: Biologists, managers, and assistants involved with the recovery and/or restoration planning and implementation of Species of Concern, Candidate, Threatened, and Endangered aquatic species.

Length: 5 days/36 hours

Objectives: Discuss Endangered Species Act and Section 7 as related to management, recovery, propagation, and contingency plans;

Review relevant publications draft guidance;

List the processes of Federal, state, tribal, and international permitting for collecting species;

Describe the components of state and Federal permits;

Evaluate the link between recovery plans population goals and the habitat required to protect, access, or restore a species;

Develop an escapement/isolation plan for captive populations;

Discuss system design for captive populations;

Explain the health policies as they relate to imperiled species;

Discuss the components of genetic plans; and

Compare and contrast restoration and recovery of imperiled aquatic species using case studies.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS1210

Water Treatment Processes for Aquatic Systems

This course is designed to familiarize participants with the technology used in the treatment of water for safe, compliant, and effective hatchery use and discharge to optimize fish propagation conditions. Oxygen injection, ozonation, biofiltration, and disinfection systems are among the topics to be covered. This course will include lecture, laboratory and case study problem solving and discussion. College Credit: 2 semester hours.

Length: 5 days/36 hours

Who should attend: Hatchery personnel.

Objectives: Discuss many legal aspects of hatchery water supplies, including water rights, quantity, and quality, and why record-keeping documentation is necessary;

Evaluate methods of water treatment, including disinfection, mechanical and biological filtration, and sterilization, for hatchery water systems;

List methods available to increase dissolved oxygen in fish rearing units;

Discuss hatchery effluent and lab drain treatment techniques to maintain NPDES and UIC compliance;

Determine human safety issues regarding water pressure, radon, electricity, confined space, and other potential hazards;

Design a preventive maintenance program that includes alarms, backup systems, callback, and cyclical replacement needs for all of the mechanical components discussed during this water treatment processes course;

Write a plan that demonstrates how isolation and quarantine goals will be adequately met to ensure safety, security, and compliance; and

Report on possible solutions to remedy water treatment problems.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS1220

Fish Genetics

This course introduces the principles of basic and population genetics. Emphasis is placed on application of these principles to increase the potential for successful management or restoration/creation of fisheries resources. College Credit: 2 semester hours.

Who should attend: Fisheries biologists, hatchery managers, and program administrators.

Length: 5 days/36 hours

Objectives: Explain basic principles of transmission, quantitative, and population genetics;

List the implications of genetic variation (or lack thereof) to hatchery and wild populations;

Apply methods of brood stock founding, maintenance, and monitoring with an objective of maintaining genetic variability of the hatchery brood stock;

Discuss possible genetic implications of the interaction of hatchery stocks and endemic populations;

Identify methods that increase potential for successful restoration/creation of fishery resources; and

Discuss regional fisheries issues.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS1350

Fish Histology and Histopathology

This intermediate-level course introduces participants to current practices in histology and histopathology of fish, as well as the techniques used to examine fish tissues. College Credit: 2 semester hours.

Who should attend: Clinical laboratory technicians, fish health biologists, fish pathologists, contaminants biologists.

Length: 5 days/36 hours

Objectives: Distinguish normal fish tissue from diseased or abnormal tissue;

Identify artifactual changes in tissues not related to a disease process;

Examine various fish tissue samples and describe the pathology;

Identify possible causes for the pathology found during microscopic examination of tissues; and

Discuss the collection, preparation, and staining of various fish tissues for microscopic examination.

Availability: Annually
Contact: Chris Horsch
Branch: Conservation Science and Policy Training
Phone: 304/876 7445

CSP2101

Conservation Biology: An Introduction

This course offers an overview of conservation biology, including discussion of its fundamental biological and ecological principles. Instruction covers biological diversity, species concepts, uncertainty, and variation in natural systems. Other topics include population viability analysis, metapopulations, island biogeography theory, habitat fragmentation effects, and reserve design principles. College Credit: 2 semester hours.

Who should attend: Biologists and managers requiring a background in current topics related to conservation biology.

Length: 4.5 days/36 hours

Objectives: Describe how genetic diversity relates to population viability;

Distinguish between species diversity and biological diversity;

Describe various species concepts and their implications for species protection;

Recognize the four major causes of uncertainty in ecological systems and the importance of natural variability;

Explain the concepts associated with population viability analysis, minimum viable populations, and metapopulations;

Describe the foundations of island biogeography theory and implications for species survival and extinction;

Discuss the implications of habitat fragmentation on sensitive species; and

Apply island theory, GAP analysis, and other related concepts to reserve design, planning, and management.

Availability: Biannually
Contact: Donna Brewer
Branch: Conservation Science and Policy Training
Phone: 304/876 7451

FIS2105

Fisheries Techniques

This course covers the basics of fish and aquatic invertebrate anatomy and identification, water quality testing, physical habitat measurements, fisheries safety, and fish sampling techniques. Additional topics include age and growth, marking and tagging, and simple knot-tying. Two and one-half days are spent in the laboratory and two days are in the field (stream and lake environments). The training integrates lecture with ample hands-on practice. College Credit: 2 semester hours.

Who should attend: Personnel with minimal fisheries experience involved with fisheries projects.

Length: 5 days/36 hours

Objectives: Collect and identify fish and aquatic invertebrate species;

Perform aquatic habitat measurements;

Measure basic water quality parameters using meters and kits; and

Use common types of fish sampling equipment.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2131

HACCP Planning for Natural Resource Pathways

Hazard Analysis and Critical Control Point (HACCP) planning is a management tool that provides a structured method to identify risks and focus procedures in natural resource pathway activities. Understanding pathways and developing plans to reduce non-target species and prevent biological contamination is necessary to avoid unintended spread of species. Using practical examples, a case study, and hands-on exercises, participants will learn principles of pathway management planning as a tool to reduce the spread of non-target species. The primary intent of this course is to prepare participants to develop and implement an HACCP plan.

Who should attend: Biologists, technicians, researchers, managers, and supervisors working with natural resource management.

Length: 2 days/16 hours

Objectives: Describe natural resource pathways and risks;

Explain the value and importance of pathway management planning;

Summarize principles of HACCP planning as a pathway management tool;

Recognize differences and relationships among non-target species, aquatic nuisance species, invasive species, native and non-native species;

Compare control points and critical control points;

Develop pathway management plans through a team effort; and

Evaluate pathway plans for completeness and accuracy.

Availability: Scheduled through Regional FWS ANS Coordinators
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2132

Rotenone and Antimycin Use in Fish Management

This training provides a foundation for the planning and execution of a fish sampling/control/eradication project using the fish management chemicals rotenone and antimycin. Application techniques are demonstrated in hands-on field exercises. Successful completion of a final exam will give the participant a certificate of completion. College Credit: 2 semester hours.

Who should attend: Designed for fish biologists who must manage or supervise the planning and execution of a fish sampling/control/eradication project using rotenone or antimycin.

Length: 5 days/36 hours

Objectives: Develop strategies for fish removal that reflect sensitivities of target species, characteristics of the piscicides, and important environmental variables;

Explain the importance of preliminary and intermediate planning in developing an environmental analysis that withstands legal challenges;

Execute a successful treatment with rotenone or antimycin;

Summarize relevant literature on mammalian, avian, fish, and invertebrate toxicology, environmental chemistry and fate, and public health issues of rotenone and antimycin;

Perform assessment of environmental issues/concerns;

Develop project management plans, including application, neutralization, monitoring, safety, security, and spill contingency plans;

Implement application and neutralization techniques for flowing and standing waters that minimize environmental impacts; and

Develop crisis management strategies for dealing positively and effectively with the public and news media.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2200

Fisheries Management

This course introduces the basic principles of fisheries management, integrating the biotic, habitat, and human components of management. Emphasis is placed on application of assessment tools to increase the potential for successful management or restoration/creation of warm and cool water fisheries resources. While many of the examples involve sport fisheries in lentic environments, riverine case histories have been integrated as applicable. Additional topics include sampling gear and biases, marking and tagging, and pond management. Participants learn how to apply management strategies through comprehensive class exercises. College Credit: 2 semester hours.

Who should attend: Fisheries biologists, hatchery managers, and program administrators with a bachelor's degree and minimal experience.

Length: 4 days/32 hours

Objectives: Describe how recruitment, growth, and mortality interact and result in population size and age structure;

Relate the history/development and seasonal variations of various size, structure, biomass, condition, and abundance indices, calculate these indices, and describe their appropriate use;

Describe the use of fish stocking, purposeful hybrids, biomanipulation, and predator/prey relations as tools for managing the biotic component;

Summarize the use of aquatic vegetation, artificial structures, and reservoir water levels as tools for managing the habitat component; and

Apply harvest regulations based on knowledge of the history and types of such regulations as tools for managing the human component of a fishery.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2201

Principles and Techniques of Electrofishing

This course explains basic principles of electricity as applied to electrofishing. The goals of the course are to: 1) familiarize participants with electric circuit and field theory, system components, and sampling issues (thereby providing a framework for increasing the efficiency and standardization of electrofishing operations); 2) provide safety training; 3) promote awareness of and methods for minimizing electrofishing-induced fish injury and stress; and 4) enhance skills in operating various electrofishing gear types. Also included is a half-day field exercise demonstrating equipment safety checks, waveform characteristics, electric field mapping, and equipment troubleshooting. College Credit: 2 semester hours.

Who should attend: Biologists who have had some experience in electrofishing.

Length: 5 days/36 hours

Objectives: Describe basic principles of electricity in circuits (circuit theory) and in water (electric field theory);

Standardize and increase the efficiency of electrofishing operations;

Calculate power requirements for effective fish sampling over a range of water conductivities;

Apply principles, such as the power transfer theory, to standardize and increase the efficiency of electrofishing operations;

Employ the proper safety precautions while using electrofishing equipment; and

Discuss the factors causing electrofishing-induced fish injury and stress.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2C01

Principles and Techniques of Electrofishing (Correspondence)

This correspondence course explains the basic principles of electricity as applied to electrofishing. The goals are to: 1) provide a framework for increasing the efficiency and standardization of electrofishing operations; 2) provide safety training; and 3) promote methods for minimizing electrofishing-induced fish injury and stress. Participants may apply for this course at any time during the year. They receive a 325-page course workbook, two computer-based training modules (on CD-ROM), and a sealed test. Successful completion of the course is achieved by passing the test. College Credit: 2 semester hours.

Who should participate: Biologists who have had at least some experience in electrofishing.

Length: Completed at the participant's own pace.

Objectives: Describe basic principles of electricity in circuits (circuit theory) and in water (electric field theory);

Map the voltage/power gradient field projected by an electrofishing unit;

Calculate power requirements for effective fish sampling over a range of water conductivities;

Apply principles, such as the power transfer theory, to standardize and increase the efficiency of electrofishing operations;

Employ the proper safety precautions while using electrofishing equipment; and

Discuss the factors causing electrofishing-induced fish injury and stress.

Availability: Correspondence
Contact: Roxanne May
Branch: Conservation Science and Policy Training
Phone: 304/876 7443

FIS2202

Biotelemetry Techniques

This course enables participants to determine the suitability of radio or ultrasonic biotelemetry as a research method, plan a biotelemetry study, and use telemetry equipment correctly. Topics include telemetry uses and methods, system components, theory for electronic signal transmission in water, mechanical signal propagation through water, receiver reception range and interference, frequency authorizations, and transmitter attachment to fish. Field and laboratory exercises demonstrate principles of equipment operation, system component compatibility, installation, testing, receiver sensitivities, and transmitter power capacity attachment techniques. College Credit: 2

Who should attend: Biologists conducting telemetry studies.

Prerequisites: none

Length: 5 days/36 hours

Objectives: Define common terms used in telemetry;

Discuss practical applications of biotelemetry as a method of research and list constraints of biotelemetry in aquatic resource management;

Describe major telemetry system components and their assembly;

Describe aspects of radio frequency management;

Use principles of circuit, power transfer, and wave propagation theory to determine reception ranges of telemetry equipment under various environmental conditions;

Make informed decisions on choosing a telemetry system; and

Correctly perform transmitter attachment or implantation.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2213

Fish-Friendly Stream Crossings

This 3-day training provides participants an overview of how to evaluate the impacts of culverts/bridges on streams and fish movement. The basic principles of engineering, fish biology, fluvial geomorphology (stream structure and behavior), erosion/sediment control, and construction practices needed to design, review, and build cost-efficient, "fish-friendly" water crossings will be covered. Two ½-day field trips will provide site visits for exposure to various types of water crossings along with hands-on site-assessment practice.

Prerequisite: Participants should have completed "Stream Habitat Measurement Techniques" (FIS3200) or have equivalent stream surveying skills. College Credit: 1 semester hour.

Who should attend: Biologists and others involved in the planning and construction of new, or assessment of existing, stream crossings to provide for the movement of fish.

Length: 3 days/24 hours

Objectives: Describe geomorphic principles utilized in culvert/bridge design;

Describe common deficiencies in stream crossings that alter geomorphic properties and impede movement of aquatic organisms;

Describe characteristics of culverts/bridges that have minimum geomorphological impediments and ecological impacts;

Evaluate planning, design, and construction of culverts and bridges that have no or low impacts on geomorphology and movement; and

Describe various protocols used to assess proposed or existing stream crossings for passage of aquatic species.

Availability: By request
Contact: June McIlwain
Branch: Conservation Science & Policy Training
Phone: 304/876 7439

FIS2220

Fish Identification

This course develops participants' fish identification skills and knowledge of regional freshwater fish species. Participants will learn an overall system for identifying fish. Topics include collection labeling and preservation, sample processing, lab safety, waste preservative disposal alternatives, distribution maps, dichotomous keys, morphometric techniques (e.g., counting scales and rays, extracting and counting pharyngeal teeth), and relative qualitative anatomical features. Characteristics of major taxonomic groups within each family will provide the basis to approach species-level identification. In addition, numerous specimens of look-alike species will be used for detailed study. Although emphasis will be placed on the families Cyprinidae, Percidae, Centrarchidae, Catostomidae, and Ictaluridae, specimens from 25 North American freshwater fish families will be available for study. This course is hands-on and lab-intensive. Field exercises will provide fresh specimens for identification. College Credit: 3 semester hours.

Who should attend: Anyone needing fish identification skills.

Length: 5 days/36 hours

Objectives: Correctly identify unknown fish;

Use proper fish collection labeling and preservation techniques;

Discuss the benefits of using a combination of reference sources for fish identification;

Use distributional maps as an aid to fish identification;

Employ dichotomous keys; and

Correctly obtain morphometric information needed for fish identification.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2221

Macroinvertebrate Ecology & Identification

Macroinvertebrates are important in the structure and function of freshwater ecosystems. As such, they often are studied in programs involving natural resources, such as pollution biomonitoring and fisheries management. Participants will learn about the ecology, sampling, and identification of freshwater macroinvertebrates through presentations and hands-on field and laboratory investigations. The emphasis will be on aquatic insects, but other major groups of invertebrates covered in less detail include flatworms, worms, leeches, snails, mussels, crustaceans, and water mites. Each day, ecological features of organisms will be discussed in the morning followed by afternoon collecting exercises in local streams and ponds. Collected specimens will be brought back to the lab and identified to family level (some to genus level). Each participant will form an individual reference collection for continued use after course completion. Students will be expected to work on their collections during the evening.

Who should attend: Anyone needing macroinvertebrate identification skills.

Length: 5 days/36 hours

Objectives: Understand the biology of aquatic insects and other freshwater macroinvertebrates, including habitat preferences, trophic relations, habits for locomotion, and life history;

Use proper collecting, labeling, and preservation techniques;

Correctly identify all aquatic insects and other freshwater macroinvertebrates to order on sight and some of the common ones to family on sight; and

Identify most aquatic insects to family, and some to genus, with taxonomic keys and microscope.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2322

Advanced Macroinvertebrate Ecology & Identification

Participants will learn about the ecology and identification of freshwater aquatic insects through presentations and hands-on field and laboratory studies. This course builds on the information taught in FIS2221 "Macroinvertebrate Ecology and Identification." Lectures will emphasize material at the family level, while labs will emphasize identification to the genus level. Each day, ecological features of organisms will be discussed in the morning followed by afternoon collecting trips to local streams and ponds. Collected specimens will be brought back to the lab and identified. Each participant will form an individual reference collection for her or his continued use after course completion. Students are encouraged to bring their own previously collected specimens. College Credit: 2 semester hours.

Who should attend: Biologists conducting biomonitoring, fish diet studies, stream ecology studies, etc.

Prerequisite: successful completion of FIS2221 "Macroinvertebrate Ecology and Identification" or equivalent previous experience.

Length: 5 days/36 hours

Objectives: Describe common life history strategies of macroinvertebrate taxa;

Describe the diverse habits and trophic relationships of macroinvertebrates;

Relate the distribution of macroinvertebrates to the physical and chemical features of their habitats;

Use proper collecting, labeling, and preservation techniques; and

Correctly identify unknown specimens.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2230

Investigating Fish Kills

This is an intermediate-level course that presents the basic procedure to be followed during a fish kill investigation. The course consists of lectures, problem-solving sessions, team role-playing activities, and practical field exercises.

Who should attend: This course is designed for fisheries biologists, hatchery managers, fish health biologists, and wildlife biologists who assess fish kills.

Length: 5 days/36 hours

Objectives: Using a flow chart, plan the protocol of action to gather data necessary for reporting a fish kill investigation;

Immediately upon arriving at the field site, begin documentation and reconnaissance while ensuring your safety and minimizing any further impact to the resource;

Identify the key players that must be contacted within 24 hours of a fish kill;

Describe how to safely and properly collect and prepare water quality, sediment, fish, and invertebrate samples to send to an appropriate lab;

Compare use of transect and segment sampling to accurately count the number of fish killed and estimate the total loss using accepted counting guidelines;

Accurately assess the monetary value of the fish loss;

Correctly identify possible primary and secondary root causes of fish kills; and

Gather all documentation and write a complete report that will prepare a biologist for being a possible court witness.

Availability: Semi-annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2300

Fish Stock Assessment

This course provides a working knowledge of fish population dynamics and stock assessment theories and techniques that help participants to: 1) understand the advantages and limitations of these techniques; 2) provide critical review of stock assessments; and 3) communicate effectively with experts in the fields of stock assessment and population dynamics. The principles discussed during the course are applied by participants through numerous computer-based exercises. College Credit: 2 semester hours.

Who should attend: Personnel dealing with harvest management issues.

Length: 5 days/38 hours

Objectives: Describe mortality rates in fish populations;

Select methods for estimating annual and fishing mortality;

Reconstruct cohort dynamics from historical harvest-at-age data;

Fit growth or stock recruitment models to fisheries data and evaluate the adequacy of the models;

Quantitatively compare the efficiency of different fishing regulations for improving management objectives;

Explicitly consider the influence of uncertainty on management decisions;

Describe the necessary quantitative elements that are part of routine fish stock assessments; and

Integrate basic growth, mortality, and recruitment models into usable models for fish stock assessment.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2301

Advanced Fisheries Management

This course provides an in-depth discussion of fisheries assessment and management, including fish sampling, indices, and exploitation and harvest regulations. However, all aspects of fishery management (i.e., habitat, biota, and human management) will be touched upon. Each topic is at least partially self-taught using a set of notes (including examples and case studies) and a list of references. Reading assignments are provided.

The class is restricted to a maximum of four students per 3-month session (e.g., April to June) and no more than 16 students per year. This graduate-level course includes both pre- and post-course work (readings, writing papers, and taking an examination). College Credit: Available.

Who should attend: Graduate students, fisheries biologists, hatchery managers, and program administrators.

Prerequisites: A bachelor's degree and an undergraduate course in fisheries management. This course assumes at least some knowledge of population structure and dynamics, sampling gears, and fishery science topics.

Length: Correspondence; CD-based. 3-month session.

Objectives: Explain the appropriate use of common inland fisheries sampling gears. Develop a standardized sampling protocol for inland freshwater fisheries in both lentic and lotic habitats.

Describe the history/development and use of common inland fisheries indices. Apply these indices in the analysis of case histories.

Identify the characteristics of unexploited fish populations and the effects of exploitation on fish populations and communities. Select and apply appropriate harvest regulations.

Availability: 3-month session
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2302

Analysis of Telemetry Data in the GIS Environment

This course provides a quantitative and computer-based review of techniques involved in conducting analysis of movement and location data. Major topics will include study design, sampling and statistical considerations, importing data into a geographic information system, determination of site fidelity and presence of a home range, multiple methods of home range calculation, examining habitat preference, dynamic and static interactions between individuals or individuals and events, and creating Monte Carol and bootstrap tests for examining spatial patterns of interest. The methods discussed are not species- or system-specific and can be applied across taxa and in most habitats.

Prerequisites: "Data Analysis I" (FIS4200) and "Data Analysis II" (FIS4300) or equivalent college course work recommended. Recent experience with ArcView GIS at least equivalent to "GIS Introduction for Conservation Professionals" (TEC71112).

Who should attend: Biologists using telemetry to study animal movement, home range, and habitat selection.

Length: 5 days/36 hours

Topics: Telemetry study design
Autocorrelation
Locational error
Map projections and datums
Complete spatial randomness
Circular statistics
Site fidelity
Monte Carlo random walk
Home range
Static and dynamic interaction
Habitat selection

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2310

Fish Ecology

Fish ecology will provide participants with an understanding of the ways in which fish interact with each other and their environment and the potential impacts of these interactions upon fisheries. This course does not use a textbook, but rather integrates knowledge from a number of current research articles to study a particular aspect of fish ecology. Participants will become familiar with scientific literature as well as the scientific method used to answer ecological questions. Participants will learn how to integrate information from a variety of studies to support or refute scientific theories and generalizations. College Credit: 3 graduate semester hours.

Who should attend: Biologists, researchers, and resource managers.

Length: 5 days/40 hours as well as pre- and post-course assignments

Topics: Physiology of fish, growth and energetics
Fish bioenergetics
Locomotion, migration and movements
Feeding and trophic ecology
Predation and predator-prey interactions
Habitat and scale of measurement
Top-down vs. bottom-up effects and control
Ecology of lotic systems
Ecology of lentic systems
Reproduction and life history traits and guilds
Early life history studies
Competition
Invasion ecology
Fish and physical fronts
Importance of size to ecological interactions/fish management and fish ecology

Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS2321

Freshwater Biomonitoring Using Benthic Macroinvertebrates

This course presents practices and concepts of using macroinvertebrates to monitor the environmental health or integrity of freshwater ecosystems. During this field-based course, participants will be directed to properly sample and identify benthic macroinvertebrates (usually to the family level) and use multimetric indices to assess biotic integrity of a number of stream locations. Sites will comprise a range of impairment levels and stream sizes. Discussion will focus on the effects of different types of pollution and environmental stress on assemblages of organisms and underlying ecological principles. College Credit: 2 semester hours.

Who should attend: Biologists with some experience in biomonitoring and who are looking to strengthen their background in core concepts and learn about cutting-edge developments.

Length: 5 days/38 hours

Topics: Sampling procedures and design
Proper use of collecting equipment
Rapid bioassessment protocols
Ecological principles, biotic integrity, biotic indicators, guild structure
Categories and derivation of metrics
Multimetric indices development
Determining reference conditions
Setting biological criteria
Index scoring modifications
Advantages and disadvantages of using macroinvertebrates in biomonitoring efforts

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS3500

Introduction to River Science and Management

Along with "Stream Habitat Measurement Techniques" (FIS3200), this new course anchors the developing stream management curriculum. A broad treatment of the physical components of river science, management, and restoration is given in the classroom and field via presentations, discussions, case studies, and exercises.

Prerequisites: "Stream Habitat Measurement Techniques" (FIS3200) or equivalent experience.

Who should attend: Biologists or others working in stream management/restoration who are interested in learning how knowledge of physical factors and processes is used to design and evaluate projects or management schemes.

Length: 4.5 days/36 hours

Objectives: Recount the historical development of river engineering;

Describe the fundamentals of physical process at work in streams and riparian areas, including hydrology, hydraulics, sediment dynamics, geomorphology, riparian interactions and soil mechanics;

Describe the basics of modeling as commonly applied to stream systems, and how models are appropriately used in project design and stream management;

Discuss stream geomorphology and stream classification systems; and

Contrast and compare the different management schools of thought, passive and active restoration techniques, and holistic and process-based restoration.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS3120

Concepts in Aquatic Ecology

The principle processes affecting the form and function of aquatic systems will be presented, with an emphasis on the interaction of biodiversity dynamics, ecosystem processes, and abiotic factors. An overview of the types of naturally occurring and anthropogenic stressors to aquatic systems will be presented, as well as biotic and abiotic response to disturbance. Some commonly used methodologies for assessing aquatic ecosystem health will be reviewed. The course will include about 2 days of site visits to a variety of aquatic habitats. Students will apply the concepts and principles of aquatic ecology to solve hypothetical problems based on different types of disturbance events to freshwater systems. College Credit: 2 semester hours.

Who should attend: Field biologists, technicians, and managers.

Length: 5 days/36 hours

Objectives: Provide a general classification of inland freshwater systems;

Describe and contrast the physical, chemical, and biological properties of surface and groundwater systems;

Describe and discuss key processes and concepts that form the basis for understanding aquatic ecosystem dynamics;

Describe the types and consequences of natural and anthropogenic disturbances to freshwater ecosystems;

List and define assessment methods and response measures that are commonly applied in environmental assessment studies;

Identify and assess responses of freshwater ecosystems to various types of disturbances; and

Describe and discuss various elements of freshwater ecosystems and environmental assessment approaches.

Availability: By request
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS3200

Stream Habitat Measurement Techniques

This field-intensive course provides skills to carry out stream physical habitat measurements required for determining regional setting, watershed attributes and stream size, longitudinal and cross-sectional profiles, channel dimension, pattern and profile, substrate characterization, mesohabitat identification, discharge and hydrology, velocity, depth, instream cover, riparian cover, and bank condition. The scale of instream habitat attributes addressed encompasses the macro-, meso-, and micro-habitat levels. Techniques can be applied to instream flow determinations, habitat assessment, stream restoration and monitoring, and fish-habitat relationships. Participants will learn techniques applicable to wadeable streams and will use surveying gear and other tools. Measurements will be used to classify a stream reach using the Rosgen methodology. College Credit: 2 semester hours.

Who should attend: Biologists interested in stream management/ restoration, or characterization of organism-habitat associations.

Length: 5 days/36 hours

Objectives: Determine watershed regional setting and identification;

Measure drainage basin characteristics;

Take elevations using sight and laser level surveying equipment and determine bankfull elevations;

Use GPS equipment for location and compass bearings to determine stream pattern;

Take substrate measurements by point-count and wet-seiving;

Use spreadsheets to plot survey and substrate data;

Take microhabitat measurements;

Determine discharge return interval and exceedence values; and

Classify a stream reach using the Rosgen methodology.

Availability: Annual
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS3210

Applied Fluvial Geomorphology—Level I

This introductory course covers the fundamentals of river behavior and general principles of fluvial geomorphology, sedimentation, hydraulics, restoration, fish habitat improvement, riparian grazing management, and stream bank erosion. Applications of these principles are presented using a stream classification system. Problem-solving techniques for watershed management, riparian assessment, fish habitat structure evaluation, stream restoration, non-point source pollution, and the integration of ecosystem concepts into watershed management are taught in both lecture and field applications. This is the first of a four-course series leading to natural channel design and stream restoration. It is a prerequisite for "River Morphology and Applications—Level II" (FIS3310). College Credit: 2 semester hours.

Who should attend: Field staff involved in stream habitat assessment and restoration.

Length: 5 days/36 hours

Topics: Geomorphology, including discharge and flood frequency, meander geometry/channel dimension and pattern, riffle/pool relations, bankfull discharge, and valley morphology; Extrapolation and prediction of hydrologic characteristics, including hydraulic geometry relations, basin character/discharge relations, and channel morphology as predictors; Sedimentation, including role of sediment-aggradation/degradation processes, bedload/suspended load relations, sediment rating curves, stream flow relations to sediment size and load, and analysis and prediction; Stream classification, including purpose of classification, delineation criteria, influences, interpretations of stream types, and applications such as Manning's roughness and riparian management guidelines; Watershed management implications, including cumulative effects procedures (HYSED, WRENS, etc.), stream threshold concepts and procedures, and streamside management guidelines.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS3310

River Morphology and Applications—Level II

This course is designed to train individuals to delineate stream types using the stream classification method as published in "Applied River Morphology" (Rosgen, 1996). A combination of lecture and field sessions will provide practical experience in applying river morphology principles. College Credit: 2 semester hours.

Who should attend: Field staff involved in stream habitat assessment and restoration.

Prerequisite: "Applied Fluvial Geomorphology—Level I" (FIS3210).

Length: 5 days/36 hours

Objectives: Integrate fluvial geomorphology concepts with problem-solving techniques;

Learn and map land forms, land types, and valley types;

Pre-map stream types on aerial photos and topographic maps;

Field validate the bankfull stage at a USGS stream gaging station;

Apply field methods to properly measure morphological variables;

Describe all of the major stream types, A–G.

Discuss ecosystem management applications using stream types such as: fish habitat structure evaluation; riparian management/grazing methods; watershed management/ cumulative effects assessment and analysis; hydraulic and sediment relations; and engineering design concepts.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS4200

Data Analysis I

This course provides the fundamental background necessary for the modeling of biological and environmental data. In an age of limited resources, it is becoming increasingly important to monitor and model wildlife populations and the environment in which they live. As such, biologists are asked to utilize efficient sampling design and modeling strategies. Statistical methods form the backbone of most approaches to understanding data. Skills gained will include thinking from a statistical perspective, increased performance in balancing risks, and improved scientific decision-making. Additional instructional goals are enhanced statistical problem-solving capabilities, more efficient communication with statisticians, more in-depth assessment of reports and studies in the literature, and strengthened aptitude to continue developing statistical skills after course completion. Presentations are enhanced by computer exercises and simulation games that apply learned concepts to biological data. This class is the entry-level step into the monitoring and statistics curricula. College Credit: 2 semester hours.

Who should attend: Any biologist who reviews or conducts scientific investigations.

Length: 5 days/36 hours

Objectives: Defend rationale of data interpretations, including the setting of Type I and II error rates;

Calculate statistical power;

Use data description techniques;

Identify assumptions of inferential statistical methods and use proper alternatives if required;

Interpret results of statistical procedures; and

Provide participants the necessary background to be successful in "Data Analysis II" (FIS4300).

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS4300

Data Analysis II

This course covers a suite of parametric and non-parametric statistical techniques used for analyzing ecological data. Procedures include one-way and two-way analysis of variance, mean separation techniques, contrasts, repeated measures, Kruskal-Wallis test, correlation, simple and multiple linear regression, stepwise variable selection, residual analysis, trend analysis, and categorical data analysis (contingency table analysis and logistic regression for resource selection). Emphasis is placed on statistical models, appropriate application of testing procedures, understanding test assumptions, and interpretation. Other topics include fundamental experimental design concepts (e.g., simple designs, experimental vs. measurement units, confounding, randomization, factors), per comparison error rate vs. experiment-wise error rate, non-centrality parameters, and interactions. Participants will design an experiment, collect and analyze data, and derive conclusions. College Credit: 2 semester hours.

Who should attend: Any biologist who reviews or conducts scientific investigations.

Prerequisite: Data Analysis I (FIS4200)

Length: 5 days/36 hours

Objectives: Use data description techniques;

Calculate statistical power and sample size;

Select proper methods to analyze various types of ecological data as animal or plant resource selection, impact analysis (status), and trend monitoring;

Identify assumptions of inferential statistical methods and use proper alternatives if required;

Interpret results of statistical procedures; and

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS4301

Data Analysis III

This new course teaches a reliable approach to proper sampling design and applies common sampling designs and concepts/techniques taught in Data Analysis I & II to questions of population assessment and monitoring. Techniques are relevant to studies of habitat and terrestrial or aquatic plants and animals. Presentations and computer analyses will be supplemented by several limited projects that will require the derivation of a sampling design, data collection, and data analysis. Case studies will serve to illustrate various approaches. College Credit: 2 semester hours.

Who should attend: Any biologist who reviews or conducts population assessment or monitoring studies.

Prerequisites: "Data Analysis I" (FIS4200) and "Data Analysis II" (FIS4300)

Length: 5 days/36 hours

Objectives: Use a practical framework to derive efficient sampling designs and projects;

Select appropriate sampling designs given project attributes and objectives;

Compare the relative efficiencies of different designs to meet project objectives;

Use the proper mean and variance estimators given the chosen sample design; and

Independently design and analyze status and monitoring studies.

Availability: Every other year
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS4303

Tag Return Models for Fisheries Research

Tagging theory provides a rich methodology for estimating parameters of animal populations. This course focuses on models for modern analysis of fisheries tag return studies. These models are based on recent research. They begin with well-known Brownie models recast in a fisheries formulation. Further, the course focuses on the separation of fisheries and natural mortality, which is a crucial issue for fisheries managers. It elaborates on many types of assumption violations and suggests potential solutions. The course includes use of special tag return analysis programs (AVOCADO and PAPAYA) developed by Dr. John Hoeing. These will be augmented by the program SURVIV. College Credit: 2 semester hours.

Who should attend: Fisheries managers and ecologists who use marking or tagging to estimate population parameters.

Length: 4 days/32 hours

Topics: Separation and additivity of fishing and natural mortality;

Non-mixing of tagged fish;

Accounting for non-instantaneous tagging samples;

Use of effort and other covariates to improve precision;

Modeling fishing gear selectivity;

Estimation of tag reporting rate using a variety of auxiliary data sources, including twice per year tagging, reward tagging, angler surveys, and catch data;

Double tagging to model tag loss; and

Auxiliary studies to estimate handling mortality.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS4304

Modern Capture-Recapture Models for Terrestrial and Aquatic Applications

This course will cover modern capture-recapture models that are used to estimate various population dynamics parameters, particularly population size or abundance. Parameter estimates are generated from data obtained from marked animals that are re-encountered at a later time. Material includes closed models, open models, and the robust design. Program MARK will be used to show examples.

In addition, sessions will be devoted to the use of telemetry in capture-recapture studies and an overview of tag return models for estimating mortality rates.

One focus will be on assumptions of methods and how these assumptions influence bias of parameter estimates. Another emphasis will be on precision of parameter estimates at different values of population parameters. A third focus will be on methods of computation using MARK and other software packages.

The course structure is instructor presentations followed by hands-on computer exercises analyzing data. Numerous examples from terrestrial and aquatic systems will be used. All sessions are conducted in the computer lab. College Credit: 2 semester hours.

Who should attend: This course will be relevant to wildlife and fisheries biologists, managers, and ecologists who use marking or tagging to estimate population parameters.

Length: 4 days/32 hours

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

FIS4400

Multivariate Statistical Analysis Techniques for Ecological Data

This course covers a variety of descriptive and inferential multivariate statistical methods that are useful for analyzing biological data. Participants use computers to analyze ecological data and apply the various multivariate procedures covered by the instructor. Case studies covering multivariate analysis of terrestial and aquatic field data are discussed. College Credit: 2 semester hours.

Who should attend: Biologist responsible for collecting, analyzing, and/or interpreting multi-variable data. Course prerequisites include one statistics course, such as "Sampling Design for Field Studies" (FIS4302), or a comparable college course. A familiarity with Windows is recommended.

Length: 5 days/38 hours

Objectives: Identify the basic concepts of matrix algebra, eigenvalues, eigenvectors, and multivariate normality;

Use methods for displaying relationships and position (principal components analysis, factor analysis, biplot displays, correspondence analysis, multidimensional scaling, and cluster analysis);

Apply techniques for group separation (MANOVA, canonical variate analysis, discriminant analysis, logistic regression);

Use techniques for determining relationships between sets of variables (canonical correlation analysis and canonical correspondence analysis); and

Analyze repeated measures.

Availability: Annually
Contact: Alan Temple
Branch: Conservation Science and Policy Training
Phone: 304/876 7440

TEC7102

New Technologies for Fish and Wildlife Managers

This course updates participants on the applications of new technologies to fish and wildlife management. Participants receive an overview of the latest geographic information systems (GIS) technology, global positioning systems (GPS), and other data-gathering devices, computer applications used in fish and wildlife management, aerial and remote survey technologies, and much more. Instruction is also provided on sources for fish and wildlife information, terminology, Internet tools, procurement of computer technology, and future technology trends. College Credit: 1 semester hour.

Who should attend: Managers, project leaders, refuge managers, assistant leaders/managers, and other natural resource professionals responsible for funding and/or overseeing the application of new technologies to field operations. No prior computer skills are required.

Length: 3 days/24 hours

Objectives: Make informed decisions on the application of GIS, GPS, and other new technologies to field projects;

Describe various personal computer tools utilized for fish and wildlife management and field applications; and

Identify common data systems, networks, and other resources for accessing fish, wildlife, and natural resource information.

Availability: Every other year
Contact: New Technology Coordinator
Branch: Conservation Land Management
Phone: 304/876 7453

TEC7111

GIS Overview for Natural Resource Conservation

A geographic information system (GIS) is a versatile computer tool that can assist in natural resource conservation planning and decision-making for a community, region, watershed, or state. This overview course describes the basic principles of GIS and helps community-based conservation groups and watershed organizations assess how GIS can be used to support their goals. Topics include an overview of GIS and global positioning systems (GPS) technology, an evaluation of available GIS tools and data, and the basics of using GIS software. This course was developed in cooperation with The Conservation Fund and the Canaan Valley Institute. It can be offered in a general format or customized to meet the needs of a specific audience (community, watershed, county, or state) (also listed as CLN7111 on page 131).

Who should attend: Representatives from land trusts, community-based conservation organizations, watershed and outreach groups, public agencies, and others interested in exploring the application of GIS to natural resource conservation. No previous experience with GIS is required.

Length: 1.5 days/12 hours

Objectives: Define GIS and GPS;

Describe the basic functionality of GIS;

Explain the availability of GIS tools and data;

Determine how GIS can be used in support of community-based natural resource conservation and watershed protection; and

Learn the basics of a GIS software package.

Availability: Annually
Contact: GIS Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7112

GIS Introduction for Conservation Professionals

A geographic information system (GIS) is a powerful tool that can assist conservation professionals in natural resource-related projects. This course gives participants an introduction to GIS technology and terminology and teaches them how to use an existing GIS. Professionals emerge from this course with skills in the use of GIS software. Training examples use data from actual FWS projects and other similar conservation efforts. College Credit: 1 semester hour.

Who should attend: Professionals working on conservation and natural resource projects, including field station and refuge personnel who wish to use the capabilities of GIS to better manage natural resources. No previous experience with GIS is required. Note: Experienced individuals who wish to develop GIS systems should consider a "GIS Design" course (e.g., TEC7114, TEC7115, or TEC7124).

Length: 3 days/24 hours

Objectives: Describe the basic functioning of GIS technology and its application to natural resource management;

Make decisions in the application of GIS technology to natural resource issues;

Create and print maps; and

Use GIS software for natural resource applications.

Availability: Quarterly
Contact: GIS Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7113

GIS Use for Wildlife Habitat Management (Intermediate)

A desktop geographic information system (GIS) can assist natural resource professionals and biologists in making decisions and conducting analysis of wildlife habitat. This course gives participants the additional skills necessary to apply GIS technology to habitat analysis and management solutions. The course uses case study approaches to cover such topics as planning distribution of forage, calculating edge, modeling population dynamics, analyzing impacts, locating critical habitat, and monitoring change. Natural resource professionals emerge from this course with enhanced skills in the use of GIS software for wildlife habitat management applications. College Credit: 1 semester hour.

Who should attend: Biologists and other natural resource professionals who wish to use the capabilities of GIS to better manage wildlife habitat. Completion of "GIS Introduction for Conservation Professionals" (TEC7112) is recommended. Prior experience in the use of ArcView or ArcGIS software is required.

Length: 4 days/32 hours

Objectives: Learn and study examples of practical GIS applications to wildlife habitat analysis;

Use GIS to calculate wildlife habitat values and parameters such as edge, area, and abundance;

Apply GIS to habitat and population modeling, monitoring, and analysis; and

Learn specialized tools and techniques available in GIS software that can be applied to natural resource and wildlife habitat management.

Availability: Annually
Contact: GIS Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

Looking for other specialized training in GIS? For more information on other GIS and GPS curricula under development, please call the Technical Training Curriculum Manager at 304/876 7456.

TEC7114

GIS Design for Natural Resource Lands Management

A geographic information system (GIS) is a valuable tool that can assist in decision-making and planning for refuges and other wildlife management areas. Participants work with GIS to learn planning and design of user-friendly systems for biologists and other natural resource professionals. Topics include project planning, coordination, data acquisition and management, analysis techniques, and successful implementation at a field site. Students use GIS software to work with data from their own refuge or area of interest. College Credit: 2 semester hours.

Who should attend: GIS developers who are planning or implementing a small-area, site-specific GIS for refuge or wildlife management area planning and decision-making. Completion of "GIS Introduction for Conservation Professionals" (TEC7112) is recommended. Prior experience with ArcView or ArcGIS software is required.

Length: 5 days/40 hours

Objectives: Successfully conduct a user needs assessment and problem analysis;

Define GIS design issues for refuges and other small-area projects, including sources of input, raster vs. vector data types, and data quality and resolution issues;

Learn various sources and methods for small-area data acquisition; and

Learn different approaches and techniques for refuge and wildlife management area GIS project planning and analysis.

Availability: Annually
Contact: GIS Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7124

GIS Design for Fisheries Management

Geographic information systems (GIS) are becoming invaluable and necessary tools within the aquatic resource community. This technology can assist fisheries biologists in decision-making and conducting analysis of aquatic habitat. Participants work with GIS to plan and design an operational system for biologists and other aquatic natural resource professionals. Topics include project planning, aquatic data acquisition, database development, and 3-D analysis techniques. Students will use case studies to cover topics such as mapping of fish disease occurrences, mapping of regulated sport fishing waters, threatened and endangered species distribution, population distribution models, and critical fish habitat mapping. College Credit: 2 semester hours.

Who should attend: Fishery biologists and/or aquatic resource managers who are planning or implementing a small-area, site-specific GIS for fisheries or aquatic resource management. Completion of "GIS Introduction for Conservation Professionals" (TEC7112) is recommended. Prior experience with ArcView or ArcGIS software is required.

Length: 5 days/40 hours

Objectives: Successfully conduct a user needs assessment and problem analysis;

Define GIS design issues for fisheries management and other small-area aquatic projects, including sources of input, data types, and data quality and resolution issues;

Learn various sources and methods for small-area data acquisition;

Learn different approaches and techniques for fisheries management; and

Plan and design a GIS for aquatic resources.

Availability: Annually
Contact: GIS Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7115

GIS Design for Regional Conservation Planning

Learn how to design a geographic information system (GIS) for a community, region, watershed, or field station to facilitate conservation planning and decision-making. Participants identify system design needs, use GIS software to learn vector- and raster-based analysis techniques, and apply GIS development to a realistic conservation problem. This course was developed in cooperation with The Conservation Fund and the University of Florida. College Credit: 2 semester hours.

Who should attend: GIS developers planning or implementing a large-area GIS. Also applicable to developers of systems for large-area ecosystem planning or FWS Ecological Services field offices. Completion of "GIS Introduction for Conservation Professionals" (TEC7112) is recommended. Prior experience with ArcView or ArcGIS software is required.

Length: 5 days/40 hours

Objectives: Learn the disciplinary foundations of regional conservation planning;

Discuss GIS design issues for large-area projects, including needs assessment, data acquisition, data quality, coordinate systems, and metadata;

Apply vector- and raster-based spatial analysis techniques (including surface modeling, cell neighborhood functions, and suitability analysis) to regional conservation planning; and

Conduct a regional conservation planning exercise.

Availability: Annually
Contact: GIS Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7134

GIS Vegetative Cover Mapping

Use of the National Vegetation Classification System (NVCS) is now a requirement for mapping vegetation on Federal lands. This course includes both field and computer lab exercises on proper field sampling design and sampling techniques. Participants rectify imagery, digitize vegetation boundaries using GIS software, design a field sampling protocol, classify vegetation types using NVCS, and conduct accuracy assessments utilizing GPS devices. Also discussed are data management, statistical considerations, and mapping resources. Completed vegetation mapping projects are presented as case studies. College Credit: 2 semester hours.

Who should attend: Biologists and GIS specialists with prior experience in using GIS and GPS technology who are designing, developing, or supporting a GIS with vegetation data themes.

Length: 5 days/40 hours

Objectives: Rectify aerial photographs;

Delineate vegetation boundaries using GIS software;

Design field sampling protocols;

Apply the NVCS to field sites; and

Develop a geodatabase with vegetation data.

Availability: Annually
Contact: New Technology Coordinator
Branch: Conservation Land Management
Phone: 304/876 7453

TEC7135

GIS Remote Sensing Technology

This introductory-level course is designed to teach remote sensing basics. The approach for the course is a combination of hands-on exercises and lecture/discussion customized for resource managers and interpreters in the NPS and FWS. Participants will learn how to acquire satellite imagery and identify appropriate uses, limitations, and benefits of remote sensing data for their applications in resource management and interpretation. Students will be exposed to a broad variety of remote sensing applications, including the study and interpretation of land-based, water-based, and atmospheric resources. This course is offered jointly by the National Park Service and the U.S. Fish and Wildlife Service. College Credit: 2 semester hours.

Who should attend: Natural resource specialists, resource management specialists, field interpreters, interpretation managers, outreach personnel, and biologists/ecologists. No prior experience with GIS, satellite imagery, or remote sensing is needed. However, a thorough familiarity with Windows software is required.

Length: 5 days/36 hours

Objectives: Describe the basic functioning of remote sensing technology and its application to natural resource management;

Identify appropriate data sources and types for specific natural resource applications;

Cite specific examples of the application of remote sensing technology to natural resource and/or interpretive applications; and

Describe how remote sensing technology can be used to enhance interpretive programs for public outreach.

Availability: Annually
Contact: New Technology Coordinator
Branch: Conservation Land Management
Phone: 304/876 7453

TEC7138

Vegetation and Wildlife Survey Using Air Sensor Technologies

Mapping and monitoring vegetation and wildlife resources in an efficient, cost-effective manner is a must for natural resource managers. Aerial sensor technologies, combined with the power of GPS and GIS, are one set of tools available. The course discusses the uses of aerial sensors, available equipment, costs, image analysis, data storage, and other related topics. College Credit: 1 semester hour.

Who should attend: Biologists and natural resource professionals with responsibility for mapping, managing, and monitoring vegetation and wildlife resources.

Length: 3 days/24 hours

Objectives: Familiarize natural resource professionals with equipment required to utilize aerial sensor technologies for cataloging, mapping, and monitoring vegetation and wildlife;

Compare aerial sensor costs/advantages/disadvantages to other remote sensing techniques; and

Provide expertise and advice to natural resource professionals in the application of air sensor technologies to vegetation survey and wildlife management.

Availability: Every other year
Contact: New Technology Coordinator
Branch: Conservation Land Management
Phone: 304/876 7453

TEC7118

GIS Cartographic Design

Learn how to design and create high quality maps for public presentations, scientific publications, wayside exhibits, and general brochures and documents. This course gives participants an overview of cartographic design principles and relevant mapping standards. Examples of existing government and private sector map designs are showcased for student instruction. This course includes practical, hands-on exercises with GIS software layout tools. College Credit: 1 semester hour.

Who should attend: Professionals working on conservation and natural resource mapping projects, including field station and refuge/park personnel who use GIS, outreach specialists, outdoor recreation planners, landscape architects, and others who wish to create professional maps and graphic products.

Length: 3 days/24 hours

Objectives: Describe the fundamental principles of cartographic design;

Produce high-quality cartographic products; and

Learn GIS techniques for effective cartographic design.

Availability: Annually
Contact: GIS Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7119

GIS National FWS Workshop

This workshop provides continuing education, training, and professional networking to FWS staff and managers needing to efficiently and cost-effectively apply geographic information system (GIS) technologies to agency applications. The workshop provides interaction with other GIS users and developers, as well as focused training, to reduce duplication of effort, standardize methods and systems, standardize data and classifications, and increase data sharing opportunities. Participants receive instruction on the latest GIS applications, techniques, regulations, and agency policies. Specialized training and seminars are incorporated into the workshop to meet priority needs of the GIS development community.

Who should attend: FWS employees and managers implementing GIS technology for agency applications or planning to initiate a specific GIS project in the near future.

Length: 3 days/24 hours

Objectives: Learn the latest applications of GIS technology in the FWS;

Receive training on the latest policies and standards for GIS systems in the FWS;

Learn methods and exchange information with other GIS users and developers to minimize the cost of your systems; and

Receive training on the latest GIS software, equipment, and technology applications applicable to natural resource management.

Availability: Every other year
Contact: GIS Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7131

Map and Orienteering Skills

Knowing where you are and knowing how to get to your final destination is a valued field skill, especially when working in remote areas. This course is specifically designed for students who need to sharpen or update their navigation and map reading skills. Instruction includes the identification of map types, map selection, datums, measurements, symbol identification, and manually plotting map coordinates. Students are also instructed on how to navigate a predefined course with a magnetic compass and use a basic global positioning system (GPS) device in conjunction with standard 7.5-minute USGS topographic maps. College Credit: 1 semester hour.

Who should attend: Field biologists and other natural resource field professionals interested in improving or updating their map interpretation and navigational skills.

Length: 3 days/24 hours

Objectives: Identify where and how to obtain maps products;

Interpret maps and their symbols;

Plot and record map coordinates (latitude and longitude, UTM);

Successfully navigate from one point to another using a compass; and

Navigate to a specific location using a GPS receiver.

Availability: Annually
Contact: Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7130

GPS Overview for Natural Resources

Global positioning systems (GPS) technologies are widely used by natural resource professionals for mapping and navigation. This overview course covers GPS theory and thoroughly examines accuracy issues for several commonly used GPS devices. Participants also receive hands-on experience using a GPS device.

Who should attend: Biologists, realty specialists, managers, and other natural resource professionals who are interested in learning about the latest GPS technology or who are responsible for procuring GPS devices.

Length: 1 day/4 hours

Objectives: Explain GPS theory;

Identify sources of errors affecting the accuracy of GPS devices;

Make informed decisions regarding the purchase of GPS technology; and

Utilize recreational-grade GPS devices for navigation.

Availability: By request
Contact: New Technology Coordinator
Branch: Conservation Land Management
Phone: 304/876 7453

TEC7132

GPS Introduction for Natural Resource Field Personnel

Global positioning systems (GPS) are used by field biologists to plot the locations of sites and navigate to point-specific locations. This course covers the operation of GPS receivers commonly used in natural resource agencies. The course includes instruction on coordinate and projection systems, hands-on exercises for real-time field mapping and field data collection, navigation techniques, and data importation to a desktop computer for use in natural resource maps. College Credit: 1 semester hour.

Who should attend: Field biologists, realty specialists, and other natural resource field professionals interested in using GPS to collect, record, mark, or find field data and locations.

Length: 3 days/24 hours

Objectives: Describe GPS technology and the NAVSTAR satellite system used by GPS devices;

Describe how the selection of coordinate and projection systems affects the collection and analysis of data;

Accurately record field data locations in various habitats;

Calculate the area of habitat types;

Use GPS devices to navigate to a specific location within 2 meters; and

Import data into GIS software for analysis and display.

Availability: Biannually
Contact: New Technology Coordinator
Branch: Conservation Land Management
Phone: 304/876 7453

TEC7133

GPS Advanced Applications for Natural Resources

This course focuses on integrating GPS devices with hand-held field computers for customizing field data collection projects. An overview of the latest devices and configurations used in mobile mapping projects is provided. Participants learn how to import GIS data layers into field collection devices and design field data forms that meet the requirements of their existing GIS. The importance of project planning, database design, and file management issues are discussed. Other topics include remote positioning techniques, vehicle tracking systems, and creating metadata according to the latest Federal standards. College Credit: 1 semester hour.

Who should attend: Field biologists, GIS specialists, realty specialists, and other natural resource professionals with previous experience using GPS who are designing or managing field data collection projects.

Length: 4 days/32+ hours

Objectives: Learn how to effectively plan a GPS project;

Design custom data collection forms to streamline field data collection;

Create and/or update GIS data layers in the field;

Import GPS project data into a geodatabase;

Demonstrate remote positioning techniques; and

Generate templates to simplify metadata creation.

Availability: Annually
Contact: New Technology Coordinator
Branch: Conservation Land Management
Phone: 304/876 7453

TEC7116

Logging System Design for ES Field Stations

This course helps participants learn how to implement an office activity "Tracking and Integrated Logging System," with associated GIS components, at a typical FWS Ecological Services (ES) field office. The training is specific to ES field office applications, including the logging of permit review and other office activity data, and the geographical display of this data. Topics include data standards, data entry, file maintenance, report generation, and GIS integration. College Credit: 1 semester hour.

Who should attend: FWS Ecological Services GIS and computer support personnel, as well as data entry/ office automation clerks specifically responsible for implementing and supporting office activity Tracking and Integrated Logging Systems, and end-user GIS for field stations.

Length: 2 days/16 hours

Objectives: Learn the components of a Tracking and Integrated Logging System;

Successfully install, enter data, and produce reports using a Tracking and Integrated Logging System; and

Learn how to integrate tracking and logging system data with GIS for a field station.

Availability: Annually
Contact: Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7117

Logging System Design for ES Field Stations (Advanced)

This course teaches participants how to maintain and enhance an office activity Tracking and Integrated Logging System and associated GIS components as typically used in an FWS Ecological Services (ES) field station. The course instruction is specific to ES field office logging systems and covers the maintenance and integration of spatial data. Students use Database Management and ArcGIS software during the class. College Credit: 1 semester hour.

Who should attend: FWS Ecological Services field station GIS and computer support personnel who are specifically responsible for supporting office activity Tracking and Integrated Logging Systems and GIS systems similar to those covered in TEC7116. Previous completion of TEC7116 or equivalent is recommended.

Length: 2 days/16 hours

Objectives: Learn advanced features and configurations of a Tracking and Integrated Logging System;

Successfully troubleshoot and correct data and configuration errors in a tracking and logging system;

Learn how to integrate scanned images (permits and photographs) and link to specific GIS data layers; and

Learn how to customize the system to store additional data, produce customized reports, and conduct advanced searches and queries.

Availability: Annually
Contact: Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7470

TEC7140

Computer Support Overview

Participants in this course learn, through hands-on exercises, how to perform numerous tasks necessary in the setup, maintenance, and use of personal computers. The course covers information needed for participants to improve their understanding of the personal computer and provides basic skills in troubleshooting, upgrading, and maintaining a PC. The information learned in this course will also help improve participants' effectiveness in communicating and working with computer technicians. College Credit: 1 semester hour.

Who should attend: Anyone who wishes to gain further skills needed to operate and support a personal computer.

Length: 3 days/24 hours

Objectives: Install/uninstall hardware and software;

Troubleshoot and fix common hardware and software problems;

Accomplish typical hardware and software upgrades;

Customize your operating system "desktop" features;

Document your computer's system configuration;

Work with printers and other peripherals; and

Perform an operating system upgrade.

Availability: Every other year
Contact: IT Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7454

TEC7141

Computer Support for Field Stations (Basic)

Participants in this course learn how to support, troubleshoot, and repair personal computer hardware and software at a typical natural resources field station. The course covers how to determine whether an upgrade to existing hardware or software is necessary and how to accomplish the upgrade. Students learn how to support Windows operating systems. Instruction also covers how to optimize PC performance through effective memory management and networking. College Credit: 4 semester hours.

Who should attend: Field station personnel responsible for supporting local office computers and software.

Length: 10 days/80 hours

Objectives: Develop a comprehensive plan for effective computer management;

Discuss ways to prevent problems with computers;

Diagnose and fix hardware and software problems;

Determine the cost-effectiveness of upgrading computer equipment;

Accomplish disassembly, component identification, and reassembly of a PC;

Conduct hardware and software upgrades;

Discuss the differences between common desktop operating systems;

Utilize tools for supporting Windows operating systems; and

Install an operational PC network in class.

Availability: Annually
Contact: IT Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7454

TEC7142

Computer Support for Field Stations (Advanced)

Participants in this advanced course learn specific operational and maintenance tasks necessary for the administration of U.S. Fish and Wildlife Service Field Station and office networks. College Credit: 2 semester hours.

Who should attend: U.S. Fish and Wildlife Service computer support personnel currently planning or constructing a field station or office network.

Length: 5 days/40 hours

Objectives: Administer and troubleshoot network operating systems;

Manage new user accounts;

Provide network security;

Monitor and tune server and network performance; and

Troubleshoot server and client network problems.

Availability: Annually
Contact: IT Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7454

TEC7145

Computer Connectivity for FWS Field Stations

Participants in this course learn various techniques to connect remote sites to the Internet and to the Service Wide Area Network. The course covers the basic principles and components of wide and local area networking, including hardware and software configuration, security implementation, and cost effectiveness.

Who should attend: U.S. Fish and Wildlife Service personnel responsible for supporting field station computer connectivity. Prior knowledge of network terminology is required.

Length: 3 days/24 hours

Objectives: Describe various techniques available for accessing the Internet and the Service Network from remote sites;

Discuss issues related to wide area networking, including security implementation, bandwidth, and redundancy; and

Learn Service rules and standards for field station network connectivity.

Availability: By request
Contact: IT Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7454

TEC7148

Computer Systems Management in the Fish and Wildlife Service

This training workshop provides continuing education and professional networking to FWS information technology managers and staff responsible for computer and network systems management in the Fish and Wildlife Service. Participants learn how to properly design computer systems to operate in the FWS national network and over the Internet. The workshop provides instruction on the latest information technology standards, security requirements, and future directions relevant to developing and managing computer systems within the FWS.

Who should attend: FWS computer specialists and managers who oversee, develop, maintain or support information technology systems, databases, Web pages, or reporting systems for national or regional applications.

Length: 4 days/32 hours

Objectives: Learn the latest applications of computer information technology in the FWS;

Receive training on the latest information technology policies and standards in the FWS; and

Learn methods and exchange information with other information technology managers to minimize cost and maximize effectiveness of FWS computer systems.

Availability: Every other year
Contact: IT Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7454

TEC7154

Internet Web Site Development for Fish and Wildlife Information

Participants in this course learn how to design a successful Internet Web site to present information to the public or other constituents. The course includes hands-on exercises using the latest software for Web editing and creation for a natural resource organization, unit, or program. Instructors outline the specific policies and procedures to create a Web page in the FWS. Participants also study examples of well-designed and user-friendly pages. College Credit: 1 semester hour.

Who should attend: FWS and other natural resource personnel responsible for developing Internet (or Intranet) Web sites. Prior skill and experience in using the Internet and Web browsers are required.

Length: 5 days/36 hours

Objectives: Describe the capabilities, features, and limitations of Web design and content intended for a variety of fish and wildlife audiences;

Use secure File Transfer Protocol to upload pages to Web servers;

Learn the do's and don'ts of Web site creation and presentation, including standards and best practices;

Discuss FWS Web publishing policy, including copyrights, and approvals;

Use Web editing software to create Web pages from templates and to effectively manage Web sites; and

Discuss future trends in Internet information delivery.

Availability: Biannually
Contact: IT Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7454

TEC7156

Internet Advanced Development for Fish and Wildlife Information

Internet Web pages are an important tool for communicating and exchanging fish and wildlife information. Internet users are demanding better designs, more reliable and accurate information—all at the touch of a button. Participants in this course will learn how to meet these challenges and keep up with changing technology by creating and maintaining advanced Web sites. Students will learn how to build and trouble-shoot advanced sites using dynamic development techniques. Participants will also review FWS policies and create simple databases. Students will learn to configure a Web server, build a Web site interface using templates, and then test pages created in class. This will allow participants to transform static, stand-alone Web pages into a user-driven site where customized information is displayed based on user input. This approach creates a positive customer experience, encourages return visits to the Web site, and establishes a positive perception about the organization behind the site. College Credit: 1 semester hour.

Who should attend: FWS and other personnel responsible for developing Internet resources and Web sites. Participants must have intermediate-level experience using Dreamweaver software.

Length: 4 days/32 hours

Objectives: Define dynamic Web sites and databases and differentiate between client-side and server-side databases;

Describe FWS policies and procedures for hosting dynamic Web pages/ databases;

Identify and describe FWS/DOI polices for collecting information from the public;

Set up a testing Web server; and

Create interactive forms, construct custom SQL queries, and create a dynamic Web page.

Availability: Annually
Contact: IT Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7454

TEC7155

Internet Developers National FWS Workshop

The design, development, and continued maintenance of quality Web pages to communicate natural resource information and programs to the public has become a significant role for many Fish and Wildlife Service employees. Participants in this workshop receive training on techniques for advanced Web page creation and instruction on the latest DOI regulations and FWS policies for Web page development. Specialized hands-on training and short seminars are incorporated into the workshop to meet the changing needs of Web page developers. In addition to policies and procedures for Web publishing, the workshop provides a professional networking forum for interaction and an opportunity to exchange proven methods of public communication.

Who should attend: All FWS employees who create and/or manage internal or external Web pages, or employees who provide FWS information to the public through the Internet.

Length: 4 days/32 hours

Objectives: Investigate the latest applications of Internet/Web technology in the FWS;

Learn techniques to improve site management and promote sites;

Receive training on the latest policies for Web page creation in the FWS;

Exchange information with other Web page developers and public information managers; and

Receive training on the most current Web page development software tools and hardware.

Availability: Every other year
Contact: IT Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7454

TEC7161

Digital Imaging Fundamentals for Resource Conservation

Field station personnel frequently use images for a variety of resource applications. This course will focus on the steps necessary to integrate digital imaging into resource conservation. This course explains digital imaging terminology and covers relevant photographic fundamentals to help improve the quality of images for use in documentation and digital presentations. Participants learn about file formats, image editing techniques, scanning, and the digital imaging workflow process. An overview of the latest digital capture devices is presented along with tips on how to prepare equipment for use in difficult field conditions. The latest guidelines for submitting images to the National FWS Image Library will also be examined along with the latest tools, techniques, and approaches for managing digital image databases. Other topics include metadata, archiving, storage considerations, and printer output issues. College Credit: 1 semester hour.

Who should attend: Resource conservation professionals who use, capture, or manage digital images for various resource applications.

Length: 3+ days

Objectives: Explain digital imaging terminology and photography fundamentals in resource conservation applications;

Provide suggestions for establishing a digital imaging workflow process;

Demonstrate ways to improve the quality and output of your images;

Provide techniques for using equipment in difficult field conditions; and

Discuss guidelines for submitting images to the National FWS Image Library.

Availability: Annually
Contact: New Technology Coordinator
Branch: Conservation Land Management
Phone: 304/876 7453

TEC7171

Land and Real Estate Law Introduction for Federal Natural Resource Projects

This course explores the laws, principles, and practices affecting the Federal land acquisition and disposal process, with an emphasis on natural resource projects. It provides an introduction to basic real estate law and examines those laws, regulations, and guidelines specifically related to Federal land acquisition and disposal. Participants learn how to integrate legal requirements into land acquisition and disposal actions. The instruction also describes the similarities and differences between the Federal and private land acquisition processes. College Credit: 1 semester hour.

Who should attend: Program managers, planners, realty specialists, and others working with Federal land acquisition projects who need to become familiar with real estate terms, principles, and practices.

Length: 4 days/32 hours

Objectives: Recognize the similarities and differences between Federal and private real property acquisition and disposal processes;

Apply principles of real property law to the Federal real property acquisition and disposal process;

Identify key provisions in the Uniform Relocation Assistance and Real Property Acquisition Policies Act, and the Department of Justice's title regulations standards and procedural guidance; and

Recognize which real property acquisition resource(s) to consult and use when confronted with a real property acquisition or disposal problem.

Availability: Annually
Contact: Realty Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7455

TEC7172

Land Acquisition and Disposal for Federal Natural Resource Projects

This course provides intermediate instruction on real estate principles and practices related to Federal land acquisition and disposal. It provides information, procedures, and training on the requirements for land acquisition and disposal, including transfers, surplus property, withdrawals, exchanges, donations, and the Department of Defense Base Closure Program. The Uniform Relocation Assistance and Real Property Acquisition Policies Act, Department of Justice Title Standards, and contaminants survey issues are also explored. College Credit: 1 semester hour.

Who should attend: Fish and Wildlife Service and other Department of the Interior, Federal, state, or private agency personnel (such as natural resources realty specialists) working directly with Federal land acquisition and disposal. Experience with basic Federal realty procedures is required. Successful completion of "Land and Real Estate Law Introduction for Federal Natural Resource Projects" (TEC7171), or its equivalent, is recommended.

Length: 2 days/16 hours

Objectives: Describe and discuss the methods for acquiring, transferring, and disposing of land, including withdrawals, exchanges, donations, and the DOD Base Closure Program; and

Describe and discuss the requirements for acquiring, transferring, and disposing of land, including the Uniform Act and environmental site assessments.

Availability: Annually
Contact: Realty Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7455

TEC7174

Land Environmental Site Assessment—Level I Procedures

Natural resource agencies are often required to conduct an initial "Level I" Environmental Site Assessment of land for contaminants and similar hazards before a purchase, transfer, or other circumstances involving land ownership or management. This course provides training on the legal authorities, agency requirements, and methodologies to complete a Level I Environmental Site Assessment for land acquisition, transfer, disposal, or cooperative agreements. Participants identify sources of background information, including maps, aerial photographs, databases, and environmental documents. Instruction also helps participants recognize common contaminants of concern, identify potential hazards, and develop strategies for conducting safe field investigations. College Credit: 1 semester hour.

Who should attend: Refuge staff, realty specialists, appraisers, and other natural resource agency personnel who will conduct, oversee, or review Environmental Site Assessments.

Length: 4 days/32 hours

Objectives: Identify key legal authorities and provisions of Department of the Interior, FWS, and industry guidelines for Environmental Site Assessments;

Conduct safe field investigations;

Identify common contaminants of concern;

Successfully complete a Level I survey; and

Meet the FWS training requirements for conducting Environmental Site Assessments (FW 341 3.8.B).

Availability: Biannually
Contact: Realty Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7455

TEC7183

Land Legal Descriptions for Real Property

This classroom course addresses the requirements for legal land descriptions that are used to convey title to real property. Principles of the Rectangular Survey System and metes and bounds descriptions are reviewed. Less common types of legal descriptions are also discussed. The course emphasizes the identification and resolution of problems encountered with legal descriptions during the land acquisition or disposal process. College Credit: 1 semester hour.

Who should attend: This course is designed for realty specialists, appraisers, surveyors, and others who require the ability to understand legal land descriptions used to convey title to real property.

Length: 3 days/24 hours

Objectives: Describe the requirements for legal descriptions used for conveying title to real property;

Identify deficiencies in legal descriptions that make them inadequate for conveying title to real property; and

Describe the procedures for preparing correct legal descriptions.

Availability: By request
Contact: Realty Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7455

Looking for other specialized training in Realty or Rights-of-Way topics? For information on curricula under development or possible options from other Federal agencies, please call the Realty Training Coordinator at 304/876 7455.

TEC7179

Rights-of-Way Habitat Management (Self-Study)

Developed by Fish and Wildlife Service biologists managing utility corridors, with input from utility industry representatives and the Edison Electric Institute, this course provides an overview of the various methods, costs, and impacts of vegetation control and habitat enhancement on utility corridors. The course includes case study presentations from both Federal land managers and industry representatives on actual partnerships to manage existing right-of-way habitats in meeting both utility and local conservation objectives.

Who should participate: Refuge biologists; other Federal, state, and private conservation land managers and others involved with the management of habitats bisected by utility corridors.

Length: 2 days/12 hours

Objectives: Identify basic right-of-way management issues involving function, safety, liability, and cost that affect habitat management activities;

Describe various management objectives and habitat conditions possible in utility corridors;

Learn and observe techniques for producing different habitat types in rights-of-way; and

Explore and study integrated management planning and partnership approaches to managing right-of-way habitat.

Availability: Constant
Contact: Realty Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7455

TEC7189

Innovative Approaches to Wildlife/Highway Interactions

Highways, as well as low volume roads, often heavily affect wildlife on public and private lands. This course will teach state-of-the-art approaches for addressing wildlife/highway interactions, providing participants with skills and resources that can be applied in highway project planning and enabling them to recognize innovative opportunities and solutions for projects that are already affecting wildlife. Topics include an overview of wildlife issues relative to existing highways and highway planning, differences in impacts and solutions between low volume and high volume roads, structural and non-structural solutions to wildlife mortality and habitat connectivity, and an introduction to available resources on wildlife/highway crossings and interactions. This course is taught through partnership with the U.S. Forest Service, Pacific Southwest Research Station. College Credit: 1 semester hour.

Who should attend: This course is designed for wildlife biologists and/or engineers who need information on wildlife/highway interactions. The primary audience is wildlife refuge and other land managers who are dealing with highway and/or access road impacts on managed lands, as well as biologists and engineers responsible for reviewing project plans and permits.

Length: 3 days/24 hours

Objectives: Discuss how highways affect terrestrial wildlife;

Utilize tools to identify and innovatively reduce wildlife impacts from highways;

Discuss the highway project planning process, including large-scale connectivity analyses; and

Develop interdisciplinary contacts and networking opportunities.

Availability: Every other year
Contact: Realty Training Coordinator
Branch: Conservation Land Management
Phone: 304/876 7455

TEC7191

Service Asset Maintenance Management System (SAMMS)

The Fish and Wildlife Service has been directed to implement an automated system that would allow it to better track its annual and preventive maintenance expenditures, document maintenance needs, and report annual maintenance accomplishments.

The Service Asset Maintenance Management System ("SAMMS") is the computerized Internet-based maintenance management system tailored for the Service that documents, tracks, and reports maintenance activities through the use of work orders.

This course is hands-on (computer interactive) and includes an introduction and step-by-step instructions that give students a basic working knowledge of the program. Upon return to his/her field station, the skills learned can immediately be applied to the field operations.

Who should attend: FWS maintenance employees who utilize the work order system, refuge/hatchery managers, deputy refuge/hatchery managers, and other personnel required to utilize the SAMMS system.

Length: 4.5 days/36 hours

Objectives: Learn the objectives of the SAMMS program;

Learn how to proficiently use the SAMMS program; and

Accurately apply this information in the field.

Availability: Six times a year
Contact: Gary Melvin
Branch: Liaison Staff
Phone: 304/876 7448

WLD7196 (formerly ECS3158)

Management of Oil and Gas Activities on National Wildlife Refuge System Lands

Students are provided technical, administrative, and legal information needed to manage oil and gas (O&G) activities on Refuge System lands. This includes statutory and regulatory authorities; minerals ownership; surface protection permits and agreements; environmental compliance and damage avoidance; O&G equipment and infrastructure; and health and safety considerations.

Students will be provided an O&G activities management overview, examine O&G issues and programs, and study examples of successful procedures, protocols, and permit stipulations. Students will also visit an O&G facility on or near a refuge to learn skills and safety considerations, and assess and monitor O&G sites for safety, permits and environmental compliance, and restoration and remediation.

Class participants will receive certification for OSHA HAZWOPER 8-hour refresher training (40 or 24-hour OSHA HAZWOPER training is a prerequisite; 29 CFR 1910.120) College Credit: 2 semester hours.

Who should attend: FWS personnel who manage or have an interest in O&G activities on Refuge System lands.

Length: 5 days/36 hours

Objectives: Understand the relationship between surface and subsurface owners of mineral estates;

Understand the basics of O&G exploration, extraction and production;

Recognize the environmental impacts and health and safety concerns associated with O&G activities; and

Understand when to use a Special Use Permit for O&G activities and strategies to obtain voluntary compliance.

Availability: Annually
Contact: Robert Hiller
Branch: Conservation Land Management
Phone: 304/876 7455

WLD2101

Conservation Biology: An Introduction

This course offers an overview of conservation biology, including discussion of its fundamental biological and ecological principles. Instruction covers biological diversity, species concepts, uncertainty, and variation in natural systems. Other topics include population viability analysis, metapopulations, island biogeography theory, habitat fragmentation effects, and reserve design principles. College Credit: 2 semester hours.

Who should attend: Biologists and managers requiring a background in current topics related to conservation biology.

Length: 4.5 days/36 hours

Objectives: Describe how genetic diversity relates to population viability;

Distinguish between species diversity and biological diversity;

Describe various species concepts and their implications for species protection;

Recognize the four major causes of uncertainty in ecological systems and the importance of natural variability;

Explain the concepts associated with population viability analysis, minimum viable populations, and metapopulations;

Describe the foundations of island biogeography theory and implications for species survival and extinction;

Discuss the implications of habitat fragmentation on sensitive species; and

Apply island theory, GAP analysis, and other related concepts to reserve design, planning, and management.

Availability: Biannually
Contact: Judy Sager
Branch: Conservation Land Management
Phone: 304/876 7483

WLD2113

Refuge Compatibility

This course provides detailed discussions of the refuge compatibility determination process. Sessions include discussions of Service compatibility policy and regulations, history of the compatibility doctrine, and when and how to prepare compatibility determinations. College Credit: 1 semester hour.

Who should attend: Project leaders, assistant refuge managers, biologists, outdoor recreation planners, and other refuge staff who are involved in managing refuge uses and potentially preparing compatibility determinations.

Length: 2 days/16 hours

Objectives: Understand the historical context of the compatibility doctrine;

Understand the authorities and mandates that establish the compatibility standard;

Understand when and why a compatibility determination is required by law; and

Understand how to prepare a compatibility determination and the specific responsibilities of the refuge manager and the regional chief.

Availability: Annually
Contact: Liz Fritsch
Branch: Conservation Land Management
Phone: 304/876 7438

WLD2117

Cultural Resources Overview

This course provides a basic overview of cultural resources management. The course covers important cultural resource issues, including the basic principles, regulations, laws, and policies affecting cultural resources. The course examines the necessary steps for ensuring compliance with historic preservation laws prior to initiating a project. College Credit: 2 semester hours.

Who should attend: Project leaders, biologists, and staff specialists.

Length: 4 days/32 hours

Objectives: Identify the steps necessary to comply with historic preservation laws;

Identify areas requiring cultural resource evaluation when projects are planned; and

Describe the effects of cultural resources on projects.

Availability: Annually
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

WLD2119

Shorebird Ecology and Management

This course illustrates how to integrate shorebird habitat considerations into wetland management planning. Sessions include shorebird identification and ecology, survey techniques, and approaches for managing impoundments and other habitats for shorebirds. Sessions are conducted both in the classroom and in the field. College Credit: 1 semester hour.

Who should attend: Biologists and other natural resource professionals participating in shorebird inventories or management activities.

Length: 3.5 days/28 hours

Objectives: Identify common shorebird species and their habitats;

Describe and perform simple shorebird survey techniques; and

Describe how to integrate shorebird habitat management strategies with existing wetland management projects.

Availability: Annually
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

WLD2139

Invasive Plant Management

This course introduces participants to invasive plant management at the field level. Instruction will include invasive plant ecology; road maintenance and its influence on the introduction and distribution of invasives; mapping and monitoring invasive plants; invasive control methods; the proper and safe use of recommended equipment; and applicable Refuge System policy. Other topics include preparing pesticide use proposals, interpreting herbicide labels, and identifying Best Management Practices. College Credit: 2 semester hours.

Who should attend: Refuge managers, biologists, technicians, and especially maintenance staff who are involved in invasive plant management on Refuge System lands.

Length: 4.5 days/36 hours

Objectives: Identify the characteristics of invasive plants and describe their impacts on the landscape;

List and describe invasive plant vectors and pathways;

Understand FWS policy for pesticide use, including applicable laws and authorities and certification requirements;

Interpret pesticide labels and identify elements required for Pesticide Use Proposals;

Recognize and record invasive plant sites on the landscape using North American Weed Management Association standards;

Conduct a site evaluation, including identifying target species and discerning proper control methods and timing regimes for effective invasive plant control;

Demonstrate ability to develop and maintain a record-keeping system for invasive plant treatment; and

Demonstrate proper selection and use of equipment, including calibration of dispensing equipment and application of herbicides according to product labels and guidelines.

Availability: Annually
Branch: Conservation Land Management
Contact: Karen Lindsey
Phone: 304/876 7436

WLD2120

Survey and Monitoring for Non-Game Birds

This course introduces participants to survey and monitoring techniques for assessing populations of various non-game bird groups. Daily field exercises will be conducted to practice techniques learned in the classroom. Sessions include non-game bird identification, survey design, survey techniques with emphasis on point count monitoring, Partners in Flight, and current issues. Sessions are conducted in both the classroom and in the field. College Credit: 1 semester hour.

Who should attend: Biologists and other natural resource professionals participating in or conducting non-game bird surveys.

Length: 3.5 days/28 hours

Objectives: Demonstrate common survey techniques for non-game birds;

Discuss approaches to organizing and initiating non-game bird monitoring programs;

Discuss history, objectives, and the role of Partners in Flight;

Learn basic bird ID techniques by sight and song; and

Manage, design, and analyze survey and monitoring programs.

Availability: Annually
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

WLD2122

Natural Resource Law

This course provides an overview of the major federal conservation laws of interest to natural resource professionals. Sessions include information on case laws that are specific to Federal species and habitat protection, pollution control, and trust responsibilities. Discussions include an historical overview of the developments of wildlife and natural resource laws, legal authorities, and development in the courts, as well as current legal issues. Instruction is provided by lawyers and professionals in the field of natural resource law. College Credit: 1 semester hour.

Who should attend: Personnel working with issues that require knowledge of Federal laws, regulations, and policies.

Length: 3 days/24 hours

Objectives: Identify major laws affecting the management of fish and wildlife resources;

Describe recent court interpretations of the laws; and

Describe how these laws and policies affect management of natural resources.

Availability: Annually
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

WLD2134

Law for Non-Lawyers

What's the difference between a law, a statute, and a regulation? What are executive orders, the Federal Register, the Code of Federal Regulations, and the U.S. Code? Using discussion and examples, this one-day session can help those with little or no knowledge of the law. Basic concepts are explained, case law is examined, and participants learn how to read and understand laws and regulations. Using the Internet, course participants also access legal resources to find laws, regulations, and current court cases.

Who should attend: Personnel working with issues that require knowledge of laws, regulations, and policies.

Length: 1 day/8 hours

Objectives: Describe legal terms generally used in laws and regulations;

Describe how court cases reflect upon the interpretation of laws; and

Identify ways to access legal resources.

Availability: Annually
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

WLD2125

Habitat Management Planning

This course provides an overview of the habitat management planning process. It offers guidance for preparing an HMP in three short modules. The modules are all synchronous Web-based sessions that will require participants to be at a computer station. The modules include sessions on background information, ecological integrity, resources of concern, habitat goals and objectives, habitat management strategies, monitoring, and annual habitat work plans. There will be a supplemental workbook.

Who should attend: Refuge managers, biologists, and other personnel involved in writing Habitat Management Plans on National Wildlife Refuges. This training is specifically for U.S. Fish and Wildlife Service personnel only.

Length: 9-hours interactive Web training in three separate sessions.

Objectives: Describe the purpose and components of the Habitat Management Plan;

Recognize and apply suggested methods to identify resources of concern;

Develop measurable habitat-based goals and objectives;

List and explain various habitat management strategies;

Describe the "what," "why," and "how" of monitoring for adaptive management; and

Review and develop an Annual habitat work plan.

Availability: Biannually
Contact: Jaime Brown
Branch: Conservation Land Management
Phone: 304/876 7442

WLD2126

Refuge Comprehensive Conservation Planning

The National Wildlife Refuge Improvement Act mandates Comprehensive Conservation Plans (CCPs) for all National Wildlife Refuges. This course provides an overview of the comprehensive planning process. It offers guidance for preparing a CCP, provides information on how to meet NEPA and other requirements for refuge planning, and describes the guidelines for involving the public in the planning process. Also included is a review of legal mandates affecting the CCP process. College Credit: 2 semester hours.

Who should attend: Refuge project leaders, refuge staff involved with preparing refuge CCP, and realty and other staff involved with comprehensive planning.

Length: 3.5 days/30 hours

Objectives: Identify policies, guidelines, and legislation that guide the refuge CCP process;

Explain the strategy for developing a refuge comprehensive conservation plan; and

Describe strategies for generating public participation in the refuge CCP process.

Availability: Biannually
Contact: Liz Fritsch
Branch: Conservation Land Management
Phone: 304/876 7438

WLD5C01

Fundamentals of Heavy Equipment Systems Components

This course is offered to any Service employee who operates, maintains, repairs, transports, or inspects Service-owned or -leased mobile (wheeled or tracked) heavy equipment. Driven by a software engine known as Multimedia Information Manager/Student Record Manager, this training program allows the student to complete one or all of the courses, which are self-paced, allowing students to repeat sections of particular interest or to move quickly through familiar material. Pre- and post-tests allow supervisors to measure students' competency and improvement. All subject matter is applicable to basic heavy equipment systems, regardless of manufacturer type.

Who should participate: Any heavy equipment manager in the Service.

Length: Up to 100 hours, self-study on CD-ROM.

Objectives: Review mobile hydraulics systems' functionality and application in equipment and have a better understanding of general hydraulics principles;

Review basic diesel engine theory, components, and systems;

Review electrical fundamentals from basic physics through machine systems;

Review features, benefits, application, design, operation, testing, adjusting, and troubleshooting of drive train systems in general; and

Review Applied Failure Analysis (AFA) theory and procedures (metallurgy; analyzing fractures and wear; visual examination; managing AFA).

Availability: Correspondence
Contact: Jaime Brown
Branch: Conservation Land Management
Phone: 304/876 7442

WLD5100

Maintenance Workshop for FWS Wage Grade Professionals

This course is designed to lay a working foundation for Service WG professionals. The course will provide an overview of the tools, resources, and processes helpful for understanding individual roles in fulfilling the Service mission. This objective is accomplished by providing an introduction and overview of the FWS; an overview of programs, policies, funding issues, and mandates affecting the operation of the FWS; FWS conservation history; basic computer concepts, troubleshooting techniques, Internet use, Microsoft Word tools, and SAMMS; and a foundation in valuing diversity, interpersonal communications, conflict resolution, and personal growth and development.

Who should attend: Wage grade professionals and others working in or directly supporting the FWS Maintenance Programs in refuges, fisheries, and Ecological Services (equipment operators, maintenance workers, tractor operators, animal caretakers, mechanics, boat operators). Note: A nomination process by each Regional office determines selection of participants. Contact your Regional office to inquire how to be considered for nomination to the workshop.

Length: 4.5 days/36 hours

Objectives: Discuss Service philosophy, policy, legal mandates, and goals for managing the Service's refuges and hatcheries;

Help employees learn basic skills in working effectively as a team to accomplish the Service's mission;

Explain the basic concepts and procedures for refuge compatibility determination and refuge and hatchery planning strategies; and

Demonstrate and understand basic computer concepts that will help in one's day-to-day duties on the job.

Availability: Annually
Contact: Liz Fritsch
Branch: Conservation Land Management
Phone: 304/876 7438

WLD2127

Wildlife Disease Monitoring Procedures

This course provides an introduction to the major diseases of wildlife with focus on avian and mammalian diseases. Topics include disease identification and management, response and contingency planning, problem solving, specimen collection, and necropsy skills for birds and mammals. Instruction will take place in the classroom and the biomedical lab. College Credit: 1 semester hour.

Who should attend: Biologists and other resource professionals involved with wildlife disease issues and management of disease sites, and those needing necropsy skills.

Length: 3 days/24 hours

Objectives: Define the basic concepts of wildlife disease, preventive, and corrective measures;

Develop and organize an informed response to disease outbreaks; and

Provide an adequate history of a disease event and correctly collect and ship specimens for diagnostic testing.

Availability: Annually
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

WLD4308

Advanced Refuge Management Academy

The Advanced Refuge Management Training Academy will prepare aspiring refuge project leaders to manage strategically, enhance decision-making, minimize risk, and maximize management outcomes. This two-week academy will endeavor to foster esprit de corps through self-evaluation sessions, group exercises, core competency development seminars, and presentations by Service and Departmental leaders. College Credit: 3 semester hours.

Who should attend: Priority attendance will be for GS-12 and GS-13 employees in the 485 series with more than 8 years of experience in resource management. Employees in the 486, 025, or other series who have demonstrated both an interest and ability in management and leadership positions will be considered as well.

Note: Selection of participants is determined through a nomination process by each Regional office. Contact your Regional office to inquire how to be considered for nomination to this training.

Length: 10 days/80 hours

Objectives: Direct individual career development through self-evaluation and exploration of issues, programs, and career opportunities of the National Wildlife Refuge System;

Use available resources to build or enhance individual knowledge, abilities, skills, and other characteristics to meet core competencies for current and higher grade levels;

Effectively meet the challenges of operating an organizational unit by applying lessons learned through your own and others' experiences;

Engage in career-long learning and personal development to foster esprit de corps, networking, and information sharing; and

Consider career opportunities for senior positions in Regional and Washington offices.

Availability: Annually
Contact: Liz Fritsch
Branch: Conservation Land Management
Phone: 304/876 7438

WLD2128

Non-Game Wildlife Survey Techniques

This course provides an overview of the inventory and survey techniques to assess amphibian, reptile, small mammal, and bat populations. The goal is to help biologists establish monitoring programs. Instruction will take place in the classroom and in the field. College Credit: 2 semester hours.

Who should attend: Biologists and other resource professionals involved with wildlife inventory programs.

Length: 4.5 days/36 hours

Objectives: Describe and demonstrate standard small-animal survey approaches;

Identify steps to organize and establish monitoring programs for small wildlife taxa, including mammals, reptiles, and amphibians;

Gain a basic understanding of natural history of reptiles, amphibians, and small mammals;

Practice setting objectives, basic survey design and analysis; and

Learn about information resources and expertise available to field staff.

Availability: Every other year
Contact: Judy Sager
Branch: Wildlife Training
Phone: 304/876 7483

WLD2130

Waterfowl Ecology and Management

Participants are introduced to waterfowl ecology and management through a broad wetlands management approach. Basic wetlands ecology is reviewed in the context of contemporary waterfowl management. Particular attention is given to establishing waterfowl management objectives based on the refuge landscape and considering local, regional, and continental scales. Topics include basic wetlands ecology, wetland biodiversity, breeding and wintering waterfowl biology, landscape ecology and management, habitat management techniques, waterfowl population management, the legal and policy framework for waterfowl management, the North American Waterfowl Management Plan, and other contemporary issues. College Credit: 2 semester hours.

Who should attend: Biologists, managers, and policy-makers involved in wetland and waterfowl management.

Length: 4.5 days/36 hours

Objectives: Describe the fundamental principles of wetland ecology;

Outline the basic biology and habitat requirements of breeding and wintering waterfowl;

Identify the major concepts of waterfowl and wetland management on a landscape scale;

Summarize various waterfowl habitat and population management techniques; and

Compare and contrast various wetland management approaches.

Availability: Annually
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

WLD2138

Wildlife Handling Techniques

This course provides practical methods and technical information for conducting effective, efficient, and safe wildlife handling operations. It focuses on chemical immobilization and covers most aspects of animal processing. The course emphasizes professional and humane animal handling as well as thorough preparation and organization. Instruction takes place in the classroom and in the field. College Credit: 2 semester hours.

Who should attend: Service biologists, managers, and others needing practical chemical immobilization training for mammals and practice handling animals (birds and mammals). The course provides background knowledge for ES and refuge biologists who review scientific take permits, need to evaluate animal handling techniques, or are handling animals in the field.

Length: 4 days/32 hours

Objectives: Understand basic veterinary procedures for animal care and handling;

Understand the advantages and disadvantages of drug delivery systems;

Initiate a five-step preparation method for organizing field operations when handling animals;

Convey professional skills and attitudes to media and public interest groups;

Address safety concerns for field personnel and the public; and

Practice successful and efficient animal chemical captures.

Availability: By request
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

WLD4008

Overview of Federal and State Water Rights

This course introduces participants to FWS water rights policies and procedures and current strategies to address water issues. It provides an overview of the various water rights doctrines, including appropriative, riparian, federal reserved water rights, and public trust doctrines. The sessions help participants understand basic water rights issues and how the FWS manages its rights. College Credit: 1 semester hour.

Who should attend: Project leaders and other FWS employees involved with water rights issues and others interested in water rights issues.

Length: 2 days/16 hours

Objectives: Describe the basic principles of water law;

Identify which states are covered by the various water doctrines; and

Describe the water adjudication process with regard to Federal lands.

Availability: By request
Contact: Steve Wunderley
Branch: Conservation Land Management
Phone: 304/876 7435

Wilderness courses listed on pp. 139–144.

OUT8104

Outreach Basics

Conservation professionals taking a comprehensive approach to natural resource management maintain strong education and outreach programs. This course gives all FWS employees the basic skills to make outreach an integral part of their projects. This course introduces education and outreach strategies that support the collaborative approach to conservation management. It is an introductory overview of outreach and the role it can play in resource conservation.

Who should attend: Conservation professionals who interact, to any extent, with public or private entities.

Length: 1 day/8 hours

Objectives: Define outreach and the employee's role in education and outreach;

Explain why natural resource agencies should practice outreach;

List three goals of implementing outreach;

Identify three steps in building credibility with public audiences and partners;

Identify target audiences; and

Describe a basic education and outreach program planning process.

Availability: By request
Contact: Sandy Spakoff
Division: Education Outreach
Phone: 304/876 7783

OUT8101

Public Outreach and Education: Overview and Program Planning

This course more thoroughly examines the topics covered in OUT8104, "Outreach Basics," and covers public outreach program planning. Participants learn about education and outreach strategies and how they can support a collaborative approach to management in the Service. The course is an extensive approach to developing education and outreach programs and strategies. This course is recommended for outreach specialists and for instructors of subjects related to education and outreach. College Credit: 2 semester hours.

Who should attend: Employees responsible for designing, planning, and implementing education and outreach programs: biologists, outdoor recreation planners, and employees involved with public affairs, partnerships, education, and outreach.

Length: 4.5 days/32 hours

Objectives: Describe three ways education and outreach can help meet natural resource objectives;

List the key elements of a successful outreach program;

Identify at least six outreach and education strategies that can help address resource management issues;

Plan an outreach strategy and identify the key elements for implementation; and

Define participants' role in education and outreach.

Availability: Annually
Contact: Sandy Spakoff
Division: Education Outreach
Phone: 304/876 7783

OUT8W02

Applied Environmental Education Program Evaluation

This on-line course is designed to assist natural resource professionals and environmental educators in evaluating their education programs. Participants will be given an opportunity to apply skills in designing evaluation tools, such as surveys, observation forms, and interview or focus group guides. Undergraduate and graduate credit is available through University of Wisconsin, Stevens Point.

Who should participate: Individuals involved in designing and/or implementing environmental/outreach programs.

Length: 10 weeks—weekly assignments

Objectives: State purposes, benefits, and importance of educational program evaluation;

Distinguish among front-end, formative, and summative evaluation;

Write measurable program objectives that link program development and evaluation;

Develop a logic model and evaluation plan for an environmental education or outreach program;

State when and how to use data collection tools;

Develop data gathering tools such as observation form, survey, and an interview or focus group guide;

Develop an alternative assessment tool such as a concept map, KWL chart, or portfolio and associated scoring tool to judge performance;

Analyze and interpret quantitative and qualitative data.

This course is offered by: The University of Wisconsin-Stevens Point, Environmental Education and Training Partnership (EETAP), and the U.S. Environmental Protection Agency through a cooperative agreement with the USFWS.

Availability: Call for availability
Contact: Georgia Jeppesen
Division: Education Outreach
Phone: 304/876 7388

OUT8102

Education Program Evaluation

This course provides participants with an overview of conducting evaluation for education and outreach programs and an opportunity to practice skills in designing and using evaluation tools. These evaluation tools, which include surveys, interview guides, and observation forms, can be used to discover information about experiences, expectations, demographics, intentions, and beliefs of the program's audience. The tools can also be used to improve existing programs. College Credit: 2 semester hours.

Who should attend: Outdoor recreation planners; employees involved with partnerships, public affairs, education, and outreach; project leaders; biologists; and anyone designing or implementing education and outreach programs.

Length: 3.5 days/25 hours

Objectives: Explain the purpose for and benefits of evaluating education and outreach programs;

Describe three phases of program evaluation that address questions at different points in the development process;

Describe the steps in the evaluation process;

Develop an evaluation plan;

Select the appropriate evaluation tool to use when answering specific evaluation questions;

Design evaluation tools, including an observation form, interview guide, and survey, that can be used to collect data;

Collect data using evaluation tools;

Analyze and interpret data gathered with evaluation tools; and

Synthesize and report evaluation results.

Availability: Every other year
Contact: Georgia Jeppesen
Division: Education Outreach
Phone: 304/876 7388

OUT8106

Natural Resource Communications Techniques and Technologies

This course is designed to help natural resource professionals communicate more effectively with both general and technical audiences through oral presentations using dynamic visual aids created with PowerPoint. Topics include developing communication strategies for specific audiences, creating computer-generated PowerPoint images, delivering the message with maximum impact, and handling equipment problems. Participants learn skills in planning, preparing, delivering, and evaluating audiovisual presentations. Participants will also gain exposure to Photoshop Elements (a great photo editing program) and Photoshop Album (an invaluable digital cataloging program). A special session entitled "Verbal Victories" provides hints for handling difficult, or even hostile, audiences.

Who should attend: People who communicate with non-FWS audiences, biologists, outdoor recreation planners, and employees involved with public affairs, partnerships, education and outreach.

Length: 4.5 days/36 hours

Objectives: Develop a communication strategy for communicating natural resource information to a target audience;

Design and prepare effective computer-generated graphics (title slides, data graphics, illustrations, etc.) using Microsoft PowerPoint software;

Develop strategies to deal with difficult and hostile audiences;

Operate and troubleshoot audiovisual projection equipment;

Deliver a 5- and a 15-minute presentation using computer-generated graphics prepared during the workshop; and

Evaluate others' presentations relative to the proper use of audiovisual presentation techniques.

Availability: Annually
Contact: Juanita Gustines
Division: Education Outreach
Phone: 304/876 7956

OUT8110

Conservation Partnerships

Productive interagency or public-private partnerships help FWS professionals accomplish conservation goals more effectively. This course focuses on forming and managing partnerships between the Service and other entities with similar goals, including government agencies, conservation groups, non-profit organizations, and landowners. Instruction emphasizes how partnerships can be used as a tool to help you meet your station's natural resources goals. College Credit: 1 semester hour.

Who should attend: Those who anticipate the need for partnering, and those who are interested in learning more about appropriate partnership opportunities.

Length: 3 days/21 hours

Objectives: Describe how and why partnerships can help accomplish natural resource management objectives;

Explain the role of culture in partnership development;

Explain how to achieve a successful partnership;

Identify types of projects appropriate for partnership efforts;

Identify appropriate potential partners to achieve your project goals;

Identify ethical considerations in developing partnerships;

Describe formal and non-formal partnerships;

Describe the basics of working with funders as partners;

List criteria for evaluating the success of a partnership;

Explain how to sustain a partnership; and

Outline how to work collaboratively with partners to develop a partnership plan.

Availability: Every other year
Contact: Angela Graziano
Division: Education Outreach
Phone: 304/876 7479

OUT8118

Conservation Partnerships in Practice

This is an advanced-level conservation partnerships course that builds on the partnership fundamentals learned in "Conservation Partnerships" (OUT 8110). Individuals often face challenges in developing landscape-level conservation partnerships with local landowners, agencies, organizations, and tribes. This roundtable provides participants with an opportunity to interact with partners who are currently involved in very successful partnership initiatives. It is a hands-on experiential training that allows participants a chance to work through their own partnership programs by talking with other partners and having open discussions about the elements that make a landscape-level partnership successful. Training takes place around the nation in locations of successful Service partnerships. College Credit: 1 semester hour.

Who should attend: Service employees currently involved in landscape-level conservation partnerships. This may include program coordinators, biologists, managers, outreach staff, and eco-team leaders.

Length: 3.5 days/28 hours

Objectives: Explain common threads in developing successful collaborative partnerships;

Identify leadership skills and expertise within and amongst partnerships;

Describe ways of developing partnership priorities based on landscape-level planning;

Apply knowledge gained in working across program lines to develop creative, visionary conservation actions that lead to "on-the-ground" partnership accomplishments; and

Explain techniques used to leverage resources for landscape-level conservation, including people, funds and materials.

Availability: Annually
Contact: Angela Graziano
Division: Education Outreach
Phone: 304/876 7479

OUT 8119

Federal Agencies & Non-Profit Partners: Building Blocks for Sustainable Funding Revenues

This 2.5-day interagency course provides participants with tools to create sustainable funding strategies for non-profit partners. Participants will examine the life cycle of the non-profit world and gain skills needed to build collaborative relationsips between Federal agencies and non-profit partners. Participants will learn about ethics and governance issues and clarify roles and responsibilities in a Federal / non-profit partnership.

Who should attend: Primary audience is Department of the Interior employees who are on-the-ground practitioners and /or decision makers. All participants should have a partnership in place with a non-profit organization. Federal participants are encouraged to bring their non-profit partner.

Length: 2.5 days/17.5 hours

Objectives: Increase capacity of non-profit participants;

Identify revenue streams for non-profit organizations;

List tools for building efficient and effective sustainable funding partnerships;

Apply a strength-weakness-opportunties (SWOT) analysis as the first step in developing a strategic plan;

Review non-profit and Federal governance (i.e., ethics, donations and BMPs); and

Use the collaborative process in their partnerships.

Availability: Annually
Contact: Angela Graziano
Division: Education Outreach
Phone: 304/876 7479

OUT 8127

Public Participation & Informed Consent—Part I Bleiker Approach for Public Officials to Complex Problem-Solving

Want to be more effective—not thwarted—in today's natural resource conservation workplace? This course will teach participants how to choose the appropriate strategies for turning opponents of your project into those who give their grudging or full consent to get it done. Using Hans and Annemarie Bleiker's more than 20 years of research and renowned training in public participation, this course will give you an understanding of how to: be responsive to the conflicting demands of the various publics without compromising your agency's mission; and discover the difference between informed consent and consensus, and know which goal to choose.

Who should attend: Managers and staff involved with endangered species listings, habitat conservation planning, or comprehensive conservation planning or who work with NRDA, NEPA, Superfund, and other potentially controversial legislation, as well as anyone else who deals with public response to a government project (all of us!)

Length: 3 days/21 hours

Objectives: Apply problem-solving skills to understand how individuals and communities form decisions;

See where science and logic fit (and don't fit) in the decision-making process;

Clearly communicate your mission and why it is our duty to carry out the mission through the project; and

Understand and work with, not against, your "publics" while accomplishing your goal.

Availability: Annually
Contact: Angela Graziano
Division: Education Outreach
Phone: 304/876 7479

OUT 8128

Public Participation & Informed Consent—Part II Bleiker Approach for Public Officials to Complex Problem-Solving

This advanced level management course by Hans and Annemarie Bleiker picks up where the OUT8127 leaves off. Participants will become intimate with the nitty-gritty citizen participation (CP) tools necessary to engineer informed consent by learning how to make meetings, advisory committees, and the media work more effectively for themselves and their projects. Participants will explore a variety CP Techniques including: Making the Most of Existing Mechanisms (instead of doing everything yourself); Fish-Bowl Planning (also called "Pay-as-You-go" Consent-Building); the Listening Log; the Napoleon's Idiot; and, the art and science of being a Participant Observer. Participants will discover how to assess their project's CP needs by using a check-list of leading questions generated by five Legitimacy Objectives, five Responsiveness Objectives, and five Effectiveness Objectives.

Who should attend: Managers and staff involved with endangered species listings, habitat conservation planning, or comprehensive conservation planning or who work with NRDA, NEPA, Superfund, and other potentially controversial legislation, as well as anyone else who deals with public response to a government project (all of us!)

Length: 3 days/21 hours

Objectives: Describe how to assess your project's Citizen Participation Needs.

Understand how to prioritize CP needs so you do not waste scarce CP resources on trying to fix relatively unimportant needs

Design a CP program that's tailored to your project's particular high-priority needs.

Availability: Annually
Contact: Angela Graziano
Division: Education Outreach
Phone: 304/876 7479

OUT8111

Building Community Support

This course is designed to help resource professionals assess the characteristics of their community and to develop long-term, positive relationships that will improve their ability to gain community backing for resource management. While resource professionals often receive excellent academic training in biological sciences—and thereby have the technical knowledge to manage the resource—they often face overwhelming opposition from individuals or interest groups to a variety of proposed actions. Learn how to develop non-specific relationships that will help the organization avoid or minimize the negative impacts that others do not agree with or support. This course is not intended to deal with immediate problems (see LED5136, p. 107) or to address establishing formal partnerships with organizations (see OUT8110, p. 90). This course will help the manager develop strategies and skills to increase community support. College Credit: 2 semester hours.

Who should attend: Natural resources agency professionals: project leaders, biologists, resource managers, and outreach specialists located at field stations, and Regional office staff responsible for planning land acquisition, habitat conservation plans, etc.

Length: 4.5 days/36 hours

Objectives: Demonstrate the knowledge and skills needed to assess social and organizational structures within a community;

Identify strategies for building community support and long-term relationships that support and help meet the participant's vision and purpose; and

Practice skills necessary to build community support and long-term relationships.

Availability: By request
Contact: Dawn Lagrotteria
Division: Education Outreach
Phone: 304/876 7339

OUT8113

Developing and Working with Friends Groups

Today everyone wants a friends group. Has someone in your community approached you about starting a friends group for your refuge? Learn how to forge this community partnership using the basic organizational structure, including the development of bylaws and an effective board of directors. Learn how to establish and sustain a viable partnership with a friends group to meet jointly developed goals. College Credit: 1 semester hour.

Who should attend: Project leaders/ managers responsible for working directly with an existing or soon-to-be-developed friends group. Friends group members who are interested in learning more about the intricacies of partnering with an agency or who will soon be establishing a friends group with a local refuge.

Length: 3 days/21 hours

Objectives: Explain the basics of philanthropy and the federal laws, regulations, and policies that apply to private fund raising for agency projects;

Describe outreach skills to effectively promote the agency mission with local businesses and community organizations and other stakeholders;

Describe and identify approaches to facilitate and encourage an optimal organizational structure for a friends group; and

Identify solutions for overcoming potential pitfalls and obstacles that may occur in developing a relationship between an agency and a friends group.

Availability: Annually
Contact: Laura Jones
Division: Education Outreach
Phone: 304/876 7499

OUT8117

Sales Outlets: Beyond Bookstores

If you are interested in knowing more about sales outlets at your site then join us for this dynamic course! Come learn how to start a new sales outlet or how to improve or expand an existing store. You'll receive hands-on skills training in marketing, displays, and selecting and purchasing the right merchandise for your store. You will learn about key aspects of sales management and the correct mechanisms for accepting donations, contributions, and establishing memorial funds. You'll also receive information regarding resources for Web site service providers, vendors, and how to improve the efficiency of your sales outlet. Plus you'll have a lot of fun!

Who should attend: Refuge support group members and Service employees who have the responsibility and oversight of operating a sales outlet.

Length: 2 days/14 hours

Objectives: Explain how to start a new sales outlet;

Explain how to expand an existing sales outlet;

Demonstrate skills in marketing, displaying, and selecting the right merchandise for a sales outlet;

Develop a plan to improve efficiency of a sales outlet;

Describe the procedures for establishing memorial funds;

Identify criteria for accepting donations and contributions; and

Describe U.S. Fish and Wildlife Service Cooperative Agreements.

Availability: Annually
Contact: Laura Jones
Division: Education Outreach
Phone: 304/876 7499

OUT8114

Volunteer Recruitment and Management

Volunteers can play a critical role in meeting the management objectives of the FWS. Participants in this course learn to develop and maintain strong volunteer and group service programs. Discussion explores the benefits and challenges of working with volunteers. Examples of volunteer programs throughout the FWS are also discussed. College Credit: 1 semester hour.

Who should attend: Volunteer coordinators and service staff with the responsibility of working with volunteer programs.

Length: 3.5 days/28 hours

Objectives: Identify appropriate applications of a volunteer program at your site;

Describe strategies for recruiting and maintaining volunteer staff;

Determine appropriate methods of training and supervising volunteer staff;

Describe ways of integrating volunteers with paid staff;

Identify incentives and benefits for volunteers;

Outline techniques that provide involvement, build morale, and promote team building;

List examples of group service projects; and

Explain the use of internships to meet the objectives of organizational programs.

Availability: Annually
Contact: Laura Jones
Division: Education Outreach
Phone: 304/876 7499

OUT8115

Balancing Nature and Commerce in Gateway Communities

Gateway communities are towns and cities that border America's magnificent national and state parks, wildlife refuges, forests, historic sites, wilderness areas, and other public lands. What makes gateway communities significant and unique is the public land resource that often serves as the focus of that community's identity and livelihood. This 4-day course brings together teams of public land managers and gateway community leaders to develop and promote their own gateway community initiatives. The course will explore significant issues facing gateway communities and adjacent public lands and the tools that can be used to address those issues. College Credit: 1 semester hour.

Who should attend: Managers of public conservation lands and interested participants from gateway communities.

Length: 4 days/28 hours

Objectives: Describe the social, political, and economic characteristics of gateway communities and public lands;

Identify the benefits of protecting and enhancing natural, cultural and visual resources of gateway regions;

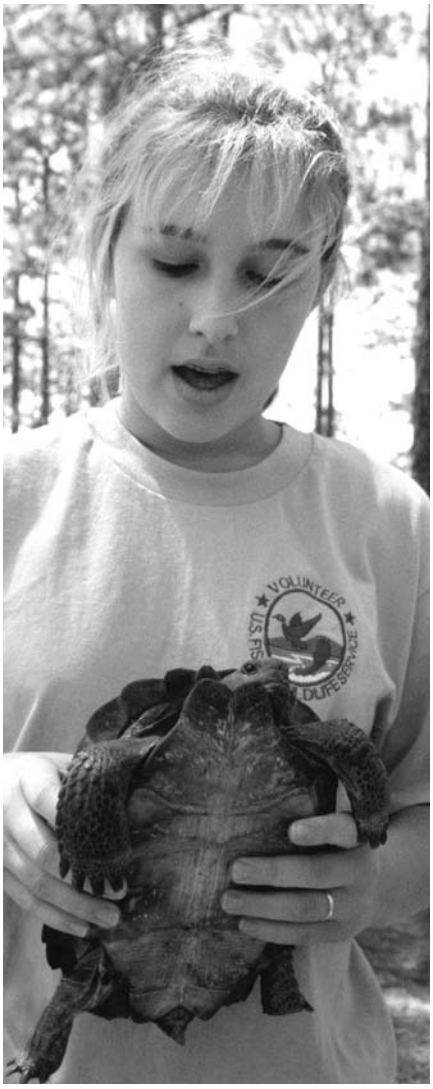
Describe approaches to land use and community planning that provide common ground for conservation and development interests;

Identify opportunities for developing partnerships between gateway communities and public land managers;

Provide opportunities for participants to work in teams and develop a plan of action to implement a collaborative project upon returning home.

This course is offered by The Conservation Fund, the National Park Service, the NPS Conservation Study Institute, and the U.S. Fish and Wildlife Service/National Conservation Training Center.

Availability: Annually
Contact: Laura Jones
Division: Education Outreach
Phone: 304/876 7499



OUT8116

Grant Writing for Conservation

Join us to learn how to interweave the grant proposal writing process and strategic thinking for successful grant management once the grant is awarded. Learn to cultivate relationships with partners or funding organizations to support projects that promote and maintain conservation and natural resource management. Topics include pre-project planning, alternative funding sources, and writing a solid grant proposal. Bring a potential grant project with you to work on during the course. You will develop a grant application and critique the critical parts of a successful grant proposal. College Credit: 1 semester hour.

Who should attend: Resource managers, biologists, ecosystem teams, Partners for Fish and Wildlife Service programs staff coordinators, managers, supervisors, outreach specialists, state conservation partners, local community representatives, and anyone (including non-government agency personnel) seeking funding to support projects on public and private lands.

Length: 3 days/21 hours

Objectives: Review solicitation guidelines and ethics;

Conduct funding searches on-line;

Examine principles of strategic thinking, project proposal planning, and management;

Plan strategies for funding projects with partners;

Write an actual proposal with instructor assistance and critique;

Explain how to build relationships; and

Identify the complete proposal-writing process: planning, research, outreach, writing, accounting, tracking, reporting, and evaluation.

Availability: Annually
Contact: Ora Dixon
Division: Education Outreach
Phone: 304/876 7314

OUT8140

Introduction to Visitor Services

As visitation to National Wildlife Refuges and Fish Hatcheries increases, managers are faced with the difficult challenge of protecting the resources while meeting the visitors' needs. This course familiarizes participants with the legislation, regulations, and policies related to visitor services in the FWS. Topics covered include the six priority wildlife-dependent recreational uses that can occur on refuges as defined by the Refuge Improvement Act, visitor services requirements, budget, compatibility, fees, concession management, and visitor services planning and evaluation. College Credit: 2 semester hours.

Who should attend: Anyone involved with visitor services or public use programs, including project leaders, natural resource managers, environmental educators, interpretive staff, outreach specialists, outdoor recreation planners, park rangers, and those working with community support groups.

Length: 4.5 days/32 hours

Objectives: Outline the history of visitor services in relation to current legislation, regulations, policies, and organizational structure of the FWS;

Demonstrate a working knowledge of FWS planning policy, including the development and implementation of Comprehensive Conservation and stepdown Visitor Services Plans;

Apply visitor use requirements to plans and programs at FWS field stations; and

Explain the FWS funding and budgeting process as it relates to visitor services.

Availability: Every other year
Contact: Matt Gay
Division: Education Outreach
Phone: 304/876 7654

OUT 8192

The Role of Hunting in Wildlife Conservation and Management

Activities and discussions will assist visitor service professionals in developing, planning, and managing quality hunting programs on National Wildlife Refuges and other public lands. This course will also introduce participants to the culture and history of hunting and its role in North American wildlife conservation and establishment of the National Wildlife Refuge system. College Credit: 1 semester hour.

Who should attend: Refuge managers, refuge operation specialists, outdoor recreation planners, park rangers, and other visitor service professionals responsible for managing or supporting hunting programs.

Length: 3.5 days/28 hours

Objectives: Summarize the genesis of the National Wildlife Refuge System Improvement Act and the relevancy of hunting and the other priority wildlife-dependent recreational uses;

Identify what constitutes a program that promotes ethical hunting;

Describe how changing demographics and lack of opportunity affect individual participation and support of hunting on National Wildlife Refuges and other public lands;

Identify resources available through partners that can help you manage your hunting program; and

Identify the steps in developing a quality hunting plan for your site.

Availability: Every other year
Contact: Matt Gay
Division: Education Outreach
Phone: 304/876 7654

OUT8193

Accessible Hunting and Fishing Opportunities

Activities and discussions will assist visitor services professionals to develop and manage quality hunting and fishing programs that are accessible to people with disabilities on National Wildlife Refuges and other public lands. Curriculum emphasis will include application of Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) guidelines. Educational sessions will provide an understanding of the needs of people with disabilities and the application of the principles of Universal Design to hunting and fishing facilities. Sessions will highlight hunting blinds, hunter check-in stations, fishing piers and platforms, parking areas, restrooms, trails, routes of travel, and other site improvements necessary to support accessible programs. Case studies will emphasize partnerships between National Wildlife Refuges and local, state, and national organizations that have worked cooperatively to develop accessible programs and facilities. This course has an active field-based component that is designed to provide hands-on experiences identifying accessibility design problems in existing facilities and potential considerations and solutions for improving access.

Who should attend: Park rangers, outdoor recreation planners, refuge operation specialists and other visitor services professionals responsible for managing or supporting hunting and fishing programs.

Length: 3.5 days/28 hours

Objectives: Use the ABA guidelines to make hunting and fishing facilities accessible to visitors with disabilities;

Identify ways to work with partners to make hunting and fishing facilities on National Wildlife Refuges and other public lands accessible to visitors with disabilities; and

Describe the needs of people with disabilities and how they affect participation in hunting and fishing.

Availability: Every other year
Contact: Matt Gay
Division: Education Outreach
Phone: 304/876 7654

OUT8194

Trail Management: Plans, Projects, and People

Public agency trail staff, contractors, and volunteers will learn to achieve sustainable and accessible trails of all kinds using the best practices of the trail management process (TMP). This collaborative process includes planning, design, layout, construction, maintenance, monitoring, crew leadership, interpretation, operations, and safety. Field exercises include trail layout, construction, and maintenance techniques.

Who should attend: Visitor services professionals and anyone responsible for planning, designing, constructing, or maintaining trails.

Length: 4.5 days/32 hours

Objectives: Apply the project management process to trail projects;

Apply information on laws, funding, planning, and NEPA in the trail management process;

Develop a strategy to use a variety of media to deliver key trail information to visitors;

Design, lay out, and document a trail on the ground that meets trail management objectives;

Prepare a plan to monitor visitor use, environmental conditions, and facilities for a trail system; and

Determine data needs and select an appropriate data collection method.

Availability: Twice annually
Contact: Matt Gay
Division: Education Outreach
Phone: 304/876 7654

OUT8146

Conserving Natural Resources Through Interpretation

Exhibits, publications, volunteer-led hikes, and other tools of interpretation offer powerful resources to help the Service build an America that cares about and supports the wildlife and wild places we protect. Interpretation is one of the six priority wildlife-dependent recreational activities that can occur on refuges, as defined by the Refuge Improvement Act. We will explore the underlying principles of interpretation through a variety of hands-on activities and field experiences at area museums, parks, and refuges. We will have behind-the-scenes insight into the production and fabrication process and look at the interpretive planning process as it relates to larger planning initiatives. College Credit: 2 semester hours.

Who should attend: Visitor service professionals and other individuals who spend more than 50 percent of their time developing, implementing, or managing interpretive programs or projects. This is an introductory course designed for individuals who do not have an academic background or experience in interpretation.

Length: 3 days/21 hours

Objectives: Identify Freeman Tilden's interpretive principles;

Define the components of the interpretive process model;

Use the interpretive analysis model to evaluate interpretive programs and media; and

Describe the variety of interpretive media and methods available.

Availability: Every other year
Contact: Matt Gay
Division: Education Outreach
Phone: 304/876 7654

OUT8142

Conserving Natural Resources Through Interpretive Writing

Writing about the resource is a task for which many U. S. Fish and Wildlife Service employees from refuges, hatcheries, ecological services, and external affairs programs often find themselves responsible without any formal training. Interpretation is a skill that can help you link audience interest to resource values. This course articulates and explores the fundamental purpose and principles of interpretation. Clear interpretive writing is critical to the public's comprehension of resource issues, themes, and values. The course content includes, definition of interpretive writing, effective writing for a variety of audiences and media; and the creation of memorable images and ideas that build connections between audience members and the resource before, during, after — or even instead of — an actual visit. College Credit: 2 semester hours.

Who should attend: Anyone involved with visitor services, public use, or outreach programs, including project leaders, natural resource managers, environmental educators, interpretive staff, outreach specialists, outdoor recreation planners, park rangers, and anyone writing about natural resource or cultural topics for public audiences.

Length: 4.5 days/32 hours

Objectives: Prepare effective interpretive writing that cohesively develops a relevant idea or ideas, without relying on a recital of a chronological narrative or related facts;

Prepare effective interpretive writing that provides opportunities for the audience to form intellectual and emotional connections with the resource and its values, meanings, and significance; and

Describe the process of interpretation model for developing and writing meaningful interpretive products.

Availability: Annually
Contact: Matt Gay
Division: Education Outreach
Phone: 304/876 7654

OUT8145

Conserving Natural Resources Through Interpretive Panels and Exhibits

Interpretive panels and exhibits project the image of an organization while they tell the story of a conservation site or deliver management objectives. Participants design tools to spark visitor interest, encourage compliance with site rules, and meet other objectives. Effective interpretive panels and exhibits provide opportunities for audience members to make their own intellectual and emotional connections with the resource. The course content covers the research, theme development, graphics, and presentation of interpretive exhibits. College Credit: 2 semester hours.

Who should attend: Outdoor recreation planners, interpretive specialists, public use specialists, landscape architects, maintenance personnel, or any conservation professional responsible for designing and producing interpretive panels and exhibits.

Length: 4.5 days/32 hours

Objectives: Prepare effective interpretive writing that cohesively develops a relevant idea or ideas;

Prepare effective interpretive writing that provides opportunities for the audience to form intellectual and emotional connections with the resource and its values, meanings, and significance;

Describe the process of interpretation model for writing meaningful interpretive products; and

Select the best substrate materials, considering site and budget limitations.

Availability: Annually
Contact: Matt Gay
Division: Education Outreach
Phone: 304/876 7654

OUT8144

Developing Festivals and Special Events

Wildlife festivals and other special events showcase conservation programs, stimulate local economies, and endow community members with public ownership of wildlife resources and habitats. This course helps participants learn methods of working with local communities to develop and promote special events. Examples of successful events throughout the FWS are showcased, with case study examples of how and where to begin. College Credit: 1 semester hour.

Who should attend: Conservation professionals who are responsible for public outreach and working with local communities.

Length: 3.5 days/28 hours

Objectives: Identify steps necessary to plan festivals and special events, including:

Find and develop sponsors;

Foster community ownership;

Tie festivals to available resources;

Plan logistics and equipment;

Design programs, exhibits, and activities;

Recruit staff and organize events; and

Promote and market events.

Availability: Every other year
Contact: Laura Jones
Division: Education Outreach
Phone: 304/876 7499

OUT8160

Environmental Education Methods

Effective education strategies are used by conservation professionals to target specific resource management issues to the right audiences. This course helps participants incorporate evaluation strategies into program planning and implementation. Participants also learn about working with students, teachers, youth groups, and their leaders, both on and off public lands. College Credit: 2 semester hours.

Who should attend: Resource managers, educators, outdoor recreation planners, law enforcement officers, and anyone whose job requires contact with the public.

Length: 4 days/32 hours

Objectives: Identify ways to work with the education community, including youth groups, home schools, and adult community members/leaders;

Discuss ways your agency/organization can support educators and become a resource for meeting their needs;

Describe successful elements of the development of education materials and programs based on national and/or state school learning requirements and youth group badges;

Adapt existing environmental education projects and materials to meet resource management objectives or site missions;

Implement an environmental education strategy on- or off-site; and

Use a planning and evaluation process through all steps of project development and implementation.

Availability: Every other year
Contact: Georgia Jeppesen
Division: Education Outreach
Phone: 304/876 7388

OUT8161

Developing Teacher Training

This course presents the essential components of working with schools and school systems, specifically conducting teacher training. The course culminates with participants applying their skills at an actual teacher workshop during the week of training. Upon return to their sites, participants are also expected to plan and conduct a workshop for teachers within a year. College Credit: 2 semester hours.

Who should attend: Any employee with responsibility for planning and conducting teacher workshops.

Length: 4.5 days/36 hours

Objectives: Plan, implement, and evaluate a teacher training workshop that addresses specific issues and topics relevant to your own site or program;

Identify appropriate strategies for including schools in programs that address resource management issues;

Write at least three learning objectives for a teacher workshop;

Construct an agenda for a teacher workshop;

Conduct a teacher workshop;

Evaluate a teacher workshop;

Critically reflect on a teacher workshop experience;

Assess local teacher training needs and devise a plan to meet them;

Identify ways to build relationships with schools;

Conduct a needs assessment of teachers;

Select adult education strategies for teacher workshops; and

Identify relevant follow-up and supportive strategies that will assist teachers after completing the workshop.

Availability: Every other year
Contact: Georgia Jeppesen
Division: Education Outreach
Phone: 304/876 7388

OUT8162

Education Programs for Youth: School's Out

This course presents participants with the elements of designing outdoor programs for youth (e.g., after-school, day, and residential camps and weekend programs) in a non-formal setting, such as a wildlife refuge, park, etc. This course offers opportunities to create or modify exciting, safe, natural resource-focused youth programs that help to address site missions and/or management objectives. Participants will use a program design model to work on their own youth program during the course, then complete and implement it as a required post-course assignment. College Credit: 1 semester hour.

Who should attend: Refuge/hatchery managers, refuge operations specialists, outdoor recreation planners, education specialists, park rangers, or any other land management employees or non-formal educators who plan to offer non-formal youth education programs in an outdoor natural setting.

Length: 3 days/21 hours

Objectives: Explain how your youth program meets your site's mission;

Describe steps in planning and designing an outdoor education youth program;

Develop techniques for building staff leadership;

Demonstrate activities that will rapidly build youth and staff cohesiveness;

Outline a plan for an outdoor education youth program at your site;

Implement an environmental education strategy on-site (on public land) or off-site (at schools, youth clubs, etc.); and

Present a sample component from your program plan to other course participants.

Availability: Every other year
Contact: Georgia Jeppesen
Division: Education Outreach
Phone: 304/876 7388

OUT8181

Working with the News Media

Effective media relations are vital for all natural resource professionals who understand that public communications affect our jobs as resource professionals. An understanding of print and electronic media — who the players are, how they operate, and what makes them tick — can often spell the difference between success and failure on a controversial resource issue. Through class discussions, written exercises, video vignettes, and on-camera practice, we address the basics of the information industry, how to establish effective media relations, successful interview techniques, handling controversial subjects, and responding to inaccurate reporting. Course participants learn the ground rules in dealing with newspapers, radio, and television. This is a fast-paced immersion in the media for novices seeking to learn the ropes, as well as for more experienced professionals seeking to hone their press relations skills. College Credit: 1 semester hour.

Who should attend: Those with little or no previous experience with the news media or those with prior media exposure seeking to improve their media skills.

Length: 2 days/16 hours

Objectives: Identify "key" media messages;

Choose the appropriate media tool to convey your message to targeted audiences;

Write a press release; and

Demonstrate an on-camera TV interview that is articulate and credible.

Availability: Annually
Contact: Sandy Spakoff
Division: Education Outreach
Phone: 304/876 7783

OUT8184

Media and Outreach Academy

This course provides an overview of Service and Department of External Affairs policies and procedures. Participants develop skills that comprise the basis for conducting external affairs work in the FWS. During the course, participants practice media skills, including being interviewed by a hostile television reporter. Participants have opportunities to interact with professional external affairs and media personalities.

This is an interactive course in which participants learn from each other, have an opportunity to voice their questions and concerns, and learn about the latest "hot topic" in the FWS. This course benefits all employees conducting outreach and interacting with the news media and provides a refresher training course and coaching opportunities for the more experienced practitioner. College Credit: 2 semester hours.

Who should attend: FWS personnel in public affairs and outreach positions, and information and education personnel who may deal with news media and press events.

Length: 4.5 days/36 hours

Objectives: Explain FWS policies and procedures for external affairs (outreach and communications) practitioners;

Explain DOI's expectations and procedures for external affairs (outreach and communications) practitioners;

Explain the role that print, television, radio, public service announcements, and the Internet play in news media outreach initiatives;

Demonstrate how to positively respond in a television interview, including a hostile one; and

Demonstrate how to respond to questions pertaining to FWS laws and acts.

Availability: Annually
Contact: Sandy Spakoff
Division: Education Outreach
Phone: 304/876 7783

OUT8191

Congress and the Field Office

Natural resource field offices provide a critical function in communication with Congressional district offices. This course gives participants ways to increase the effectiveness of contact with Congressional staff members so as to communicate their agency's message in an accurate, concise, rational manner. Also covered are ways to help Congressional staff members address constituent needs. College Credit: 1 semester hour.

Who should attend: Natural resource field staff who have extensive dealings with the public and Congressional offices.

Length: 2 days/15 hours

Objectives: Identify key contacts in Congressional district offices;

Identify ways to meet district staff needs quickly and effectively;

Prepare and present briefings to Congressional district offices; and

Prepare a communications strategy that will inform the district staff about your projects and the services your office can provide citizens in the area.

Availability: By request
Contact: Sandy Spakoff
Division: Education Outreach
Phone: 304/876 7783

Education and Outreach Program Support

The Division of Education Outreach works with the other parts of the Fish and Wildlife Service to provide support and consultation on education and outreach projects. The division helps assess, plan, evaluate, and develop education and outreach training, programs, tools, and resource materials. NCTC has helped initiate, field test, and support education and outreach programs that address migratory birds, wildlife trade, endangered species, wetlands, schoolyard habitat, urban wildlife, and other topics. NCTC provides national coordination for the U.S. Fish and Wildlife Service National Extension and Sea Grant Program, Scouting Program, and the Shorebird Sister Schools Program.

National Program Coordination
- Provide national-level coordination and support for regionally based programs

Community Outreach
- Serve in community relations role for NCTC local area

Helping Other Service Divisions
- Work at a national or regional level; respond to needs and requests from the Service
- Ensure that efforts are collaborative with another Service entity in both funding and staffing
- Apply and demonstrate state-of-the-art processes to program development

Education and Outreach Tools and Resources
- Support research and development of education tools used to design, develop, and evaluate education and outreach. Integrate research findings and model programs into training courses

Field Testing Model Programs
- Develop programs for local schools: field test model programs for later replication within Service on a broader scale

- Field test in NCTC Learning Laboratory or at selected field stations

Contact: Nancy Streeter
Division: Education Outreach
Phone: 304/876 7651

Supervisory Skills Development Program

Completion of this program meets the 80-hour training requirement established by the Department of the Interior for all new supervisors. This program is a combination of classroom and on-line learning to help new supervisors gain the key competencies needed for successful performance.

Successful completion of LED6102, "Applied Supervision" and its prerequisites fulfills 45 hours of the required training. The remaining 35 hours of training can be accomplished through selection and successful completion of on-line training modules from a menu of sources. More information on training options that will meet the content requirements available on the program Web site at *http://training.fws.gov/led/supvdevlprogram/index.htm.*

Topics covered in the Supervisory Skills Development Program are:

Transitioning from Peer to Supervisor
Supervisory Roles and Responsibilities
Merit Principles and Prohibited Personnel Practices
Position Management and Classification
Staffing and Placement
Employee Relations
Labor Management Relations
Training and Development
Work Life Initiatives
Diversity (including sexual orientation and persons with disabilities)
Affirmative Employment Programs
Preventing and Resolving Complaints
Reasonable Accommodations
Sexual Harassment and Hostile Work Environment
Ethics and Standards of Conduct
Time Management for Supervisors
Leadership Skills Inventory
Situational Leadership
Interpersonal Conflict Resolution
Decision Making
Oral/Written Communication Skills (related to supervision)
Customer Service
Motivation
Financial Management
Resource Allocations
Computer Technology

(For more information go to *http://training.fws.gov/supervisors/)*

LED6102

Applied Supervision

This course, including its on-line prerequisites, covers certain critical personnel, human relations, leadership, and critical thinking skills needed to successfully supervise employees in mission accomplishment while building and sustaining a productive work environment. Course topics include transitioning from peer to supervisor, roles and responsibilities, developing and motivating staff, handling difficult situations, and leading a diverse workforce. Prerequisite topics include pay and leave, ethics, Merit System Principles, and rights and responsibilities. Note: This course does not include staffing, classification, position management, interviewing, selection, or reasonable accommodation. For more information on these topics go to *http://training.fws.gov/led/supvdevlprogram/index.htm.* College Credit: 2 semester hours.

Who should attend: New supervisors or team leaders with supervisory responsibilities.

Length: 4.5 days in classroom plus 5 hours for prerequisites for a total of 45 hours.

Objectives: Effectively perform supervisory roles and responsibilities;

Manage employee performance and conduct;

Use communication skills to direct the workforce and provide feedback;

Identify the benefits and ways to manage a diverse workforce;

Effectively apply conflict resolution techniques; and

Provide direction and support appropriate to the employee's developmental level.

Availability: Six times per year
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED6166

Advanced Supervision: Building on Experience

If it has been some time since you took basic supervisory training, a lot of things may have changed. This course provides the experienced supervisor with best practices in managing people and an opportunity to share experiences and learn from others. This course has been developed around a leadership performance model based on "Head, Heart & Courage." Main topics include roles, responsibilities, and accountability; managing a diverse workforce; supervisory tools to deal with performance and conduct problems; understanding the work and the employee; coaching, counseling, and conflict management; managing in a changing world; and leadership development. This course is not recommended for supervisors with less than two years of experience. College Credit: 2 semester hours.

Who should attend: Experienced supervisors who have already completed the 80 hours of mandatory supervisory training.

Length: 4.5 days/40 hours

Objectives: Understand supervisory roles and responsibilities to enhance effectiveness;

Determine whether an issue is related to performance or conduct and determine the appropriate action to take;

Effectively supervise unique individuals;

Understand workplace conflict and minimize its impact;

Help those in your work group deal with change; and

Guide and support employees in career development activities.

Availability: Annually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED6176

Introduction to Management Skills

This course is a general introduction to management for those in primarily non-supervisory positions. Participants learn how to supervise others when they don't have the authority of a supervisory position. Specific topics include establishing rapport and cultivating influence, achieving trust and building relationships, planning and organizing projects and resources, building and leading a team, solving problems and making decisions, and implementing change successfully. College Credit: 1 semester hour.

Who should attend: Staff employees and team leaders who find themselves supervising the work of others or are interested in doing so in the future.

Length: 3 days/24 hours

Objectives: Handle responsibility and act with authority;

Effectively manage time and reduce stress;

Manage the day-to-day challenges of leading a team;

Use effective strategies for organizing projects and negotiating resources;

Apply problem-solving and decision-making skills to accomplish tasks; and

Create and implement change in an organization.

Availability: Annually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED6179

Coaching for Effective Performance

Coaching is a valuable tool in building a quality workforce and in developing employees. Because it is an interactive and collaborative process, coaching has the potential to be as beneficial to the coach as to the individual being coached. This course presents a detailed methodology for coaching others and demonstrates the personal and interpersonal qualities needed to exemplify a coaching partnership. Participants discover what is needed to evoke long-term excellence in others, examine and assess their own skills and qualities as a coach, and apply their learning in role plays and structured exercises. Participants leave the course with a self-development plan for improving their own competence as a coach. College Credit: 1 semester hour.

Who should attend: Open to any employee. Required for those who desire to participate as a coach in either the Stepping Up to Leadership or the Advanced Leadership Development Program.

Length: 2 days/16 hours

Objectives: Through guided discussion, group and individual activity, and role-play practice, participants will:

Link the coaching role to effective leadership and organization success;

Describe the qualities of successful coaching relationships;

Demonstrate the steps and skills for coaching with intention; and

Complete an action plan for developing coaching skill.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED6072

Stepping Up to Leadership

The Stepping Up to Leadership Program offers individuals the chance to improve their leadership skills through skill assessments, coaching, self-paced and group exercises, and developmental assignments. This program is targeted to aspiring mid-level managers. The program includes a two-week session targeting leadership competencies and a follow-up week after a six-month interim. The interim requires a commitment to work on your Individual Development Plan through developmental assignments, coaching, and team project work. Team project presentations occur during the one-week follow-up. College Credit: 3 semester hours.

Who should attend: Open to GS11 and GS12 employees. Applicants submit packages that include KSA responses, an SF-171 or OF-612, and a supervisor's recommendations for regional evaluation and merit-based selection. Details are available in the announcement and on the Web site.

Length: One two-week session, a one-week session, and two shadowing assignments during the six-month interim.

Costs: Field stations are responsible for the participants' travel, including travel and per diem during assignments.

Objectives: Articulate a personal vision of leadership;

Identify and integrate the Service's leadership competencies into personal development and career planning; and

Exhibit leadership behaviors that actively support the Service's mission.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7488

LED6078

Advanced Leadership Development Program

The Advanced Leadership Development Program offers participants an opportunity to explore leadership in the U.S. Fish and Wildlife Service and to assess, learn about, and develop themselves as leaders.

The program includes three phases focusing on self, team, and the organization. Although NCTC will host the classroom sessions for the program, the primary learning environment is within the organization itself. Training assignments, including a 30-day job swap and a 60-day developmental assignment, will be used to explore and experience leadership in the day-to-day environment of the Service.

Feedback from 360-degree evaluations and individually assigned coaches give the participants full awareness of self and how others view them as leaders. Additional information is available on the Web site. College Credit: 4 semester hours.

Who should attend: Open to GS13 and GS14 employees. Each applicant must complete an application package that is evaluated by Service leadership and is used in the selection of candidates. Details are available on the Web site.

Length: One 2-week session, two 1-week sessions, and 30-day and 60-day assignments within the September to July time frame.

Costs: Regions are responsible for the participant's travel, including travel and per diem during assignments.

Objectives: Develop personally;

Build trust among employees;

Develop collaborative partnerships with internal and external stakeholders;

Assess and align staff to accomplish goals and recognize value of relationship with stakeholders; and

Assume the role of change agent to lead an organization to increased effectiveness.

Availability: Annually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7488

LED6129

Effective Budgeting for Supervisors and Managers

A successful manager must have a basic understanding of budgetary concepts and processes and be able to apply them effectively. Participants examine the Federal budget cycle from the field station level up to congressional appropriations and back to the field station level; learn the do's and don'ts of writing budget documents that are used by decision-makers; develop actual budget documents that relate to their work stations; and receive feedback from experienced Service budget professionals. This course is designed for Fish and Wildlife Service personnel only. College Credit: 1 semester hour.

Who should attend: Project leaders and senior staff, regional administrative officers and senior program staff, Washington office administrative officers and senior staff, and budget analysts.

Length: 3.5 days/28 hours

Objectives: Develop a budget request that will get results;

Prepare effective budget justification and presentation materials;

Write capability, effect, and issue statements;

Develop an office budget;

Determine spending status and make adjustments; and

Accommodate budget increases or decreases during the year.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED5119

Congressional Operations Seminar

This course explores different aspects of Congress, congressional process and procedures, and how they affect daily FWS operations. To give firsthand understanding of Federal law-making and congressional culture, this course is conducted on Capitol Hill. Participants hear from and ask questions of congressional members and their staffs, political scientists, lobbyists, the media, and FWS legislative affairs and budget office personnel. Participants also attend congressional hearings and observe floor action. College Credit: 2 semester hours.

Who should attend: Employees who deal with congressional offices and their staffs or those who, as part of their jobs, need to understand how Congress operates.

Length: 4.5 days/36 hours

Objectives: Describe the leadership and organization in Congress;

Explain the authorization, appropriation, and budget processes;

Describe congressional committee and floor procedures;

Define the roles of members and their personal and committee staffs;

Describe the influence of media and special interests on public policy formulation; and

Explain the role of the FWS budget and legislative affairs offices.

Availability: Annually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7488

LED5W05

EAGLS Fundamentals

This on-line course will teach you the basics of the Electronic Account General Ledger System (EAGLS), the on-line government purchase card tool that is being used by the Service. EAGLS Fundamentals teaches you a variety of techniques to maintain credit card accounts and adjust credit card charges using this Web-based system.

Who should attend: The administrative person in the field or Regional Office who is responsible for maintaining credit card accounts and adjusting credit card charges for card holders.

Length: 2 hours

Objectives: Log in and out of EAGLS;

Make basic maintenance changes to accounts;

Print current charge card transactions from EAGLS;

Read on-line charge card statements;

Change role and hierarchy information on your account to access multiple cardholders;

Make cost adjustments in EAGLS;

Create a "Favorite List" in EAGLS and make modifications to it;

Perform quick allocation and detailed cost allocation of credit card charges; and

Perform a referencing adjustment.

Availability: Self-study Web-based
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED6W05

Ethics for New Supervisors

Supervisors are responsible for modeling ethical behavior and providing advice and guidance to employees regarding standards of conduct. This on-line program has been developed to help ensure that new supervisors know how to find answers to a variety of ethical dilemmas that arise about employee conduct and activities and ensure compliance with Federal regulations.

Who should participate: This course is required pre-work for anyone attending "Applied Supervision" (LED6102). In addition, anyone taking this course should have already taken the Department of Interior's Government Ethics Course at *http://training.nbc.gov/ethics/*

This course is also a good ethics refresher for any supervisor.

Length: 1 hour

Objectives: Take the correct course of action regarding employee conduct and activities.

Availability: Self-study Web-based
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED6W06

Supervisory Pay and Leave Overview

The purpose of this course is to provide supervisors with various resources to find the correct and legal answers to a number of pay and leave scenarios similar to those faced by supervisors in the Fish & Wildlife Service.

Who should participate: This course is required pre-work for anyone attending "Applied Supervision" (LED6102). It is also a good refresher for any supervisor.

Length: 1 hour

Objectives: Locate relevant regulations pertaining to possible pay situations of Service employees;

Authorize and approve overtime and other forms of premium pay when necessary to accomplish the mission of the organization; and

Approve work schedules and leave requests in accordance with Service and Departmental policy and federal regulations.

Availability: Self-study Web-based
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED5N46

U.S. Fish and Wildlife Service New Employee Web Orientation Program

As a new employee, your first weeks on the job are full of questions. The New Employee Web Orientation Program is just for you. Found within this site are links to a variety of different sources of important information for a new Service employee to understand. Examples include:

Information on the history/structure of the Service and Department of Interior;

Information and links to FWS offices and programs;

Information on your Federal government benefits; and

Links to other sources of interesting information for a new employee.

The program is available to you anytime on the World Wide Web at *http://training.fws.gov/orientation*

Who should participate: Any new employee to either the Service or the government who is looking for information about the organization or the benefits available.

Requirements: A computer connected to the Internet.

Contact: Receptionist
Branch: Branch of Leadership and Employee Development
Phone: 304/876 7488

LED5240

U.S. Fish and Wildlife Service Employee Foundations

This is a 1-week basic-skills course for new FWS employees. The main focus of this course is to provide skills for working with others to accomplish the mission of the Service. The course provides: an introduction to the U.S. government, public service, and the U.S. Fish and Wildlife Service; an overview of FWS-related legislated mandates and FWS/conservation history; a foundation in valuing diversity, interpersonal communications, conflict resolution, and career development. College Credit: 2 semester hours.

Who should attend: This course is mandatory for all permanent FWS employees in two-grade interval positions (i.e., GS-5/7/9/11/12/13), within their first year on the job.

New employees are strongly encouraged to complete LED5N46, the Web orientation program, prior to attending this course.

Note: This course does not take the place of a regional "New Employee Orientation."

Length: 4.5 days/36 hours

Objectives: Be well grounded in FWS history, organization, and mission;

Be able to apply interpersonal skills in building professional relationships; and

Use the Individual Development Plan and career development tools to guide development over the life of a career.

Availability: Six times a year
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7488

LED5118

Team Startup

This highly interactive course helps newly formed teams get off to the right start by introducing team members to the fundamentals of teamwork. [Another course, "Team Effectiveness Training" (LED5021), is offered for established teams.]

Who should attend: Teams that are just forming or less than 6 months old. This training is offered at your team's request and at your desired location.

Length: 1 day/8 hours

Objectives: Define teamwork and identify when teamwork is an appropriate approach to a task or project;

Identify types of teams and related leadership roles;

Link teamwork with the organization's mission, outline a functional structure for teamwork, and examine the environment in which a team is most effective;

Describe the stages of team development and related leadership styles; and

Utilize an evaluation process for team performance.

Availability: By request
Contact: Curriculum Manager
Branch: Leadership and Employee Development
Phone: 304/876 7476

LED5021

Team Effectiveness Training

This course gives established teams the opportunity to identify their own training needs and then receive customized training to improve effectiveness. The team completes an assessment that indicates areas of need. The subsequent amount of training (1–6 days) is based on the team's assessed need. Six months after the training, the team completes another assessment to identify improvements. [Newly formed teams should refer to the "Team Startup" course (LED5118).] College Credit: 0–3 semester hours.

Who should attend: Ecosystem teams and teams that meet these criteria: interdependent members committed to a common purpose and producing collective products. Non-team organizations are encouraged to contact NCTC to discuss alternative training and/or development. Class size is limited to 25. The training is offered at the team's request and at its desired location.

Length: Varies, 1–6 days/8–48 hours

Topics: Team interpersonal skills (communication, utilizing team members' abilities, conflict resolution);

Team management skills (shared vision, planning for results, meeting management, evaluating performance); and

Team analytical skills (problem-solving, decision-making).

Availability: By request
Contact: Curriculum Manager
Branch: Leadership and Employee Development
Phone: 304/876 7476

LED5122

Effective Facilitation

This course is intended for those employees who have or are expected to have responsibilities as facilitators in their respective agencies. The course is a combination of theory presentation, large group discussions, and skills practice. Participants are given several opportunities to apply their learning during videotaped sessions. Participants will give and receive feedback from other participants and the instructors. College Credit: 2 semester hours.

Who should attend: Employees who have or are expected to have responsibilities as meeting facilitators.

Length: 4.5 days/36 hours

Objectives: Manage group processes towards the desired outcome;

Implement and reinforce the use of operating guidelines;

Use group memory techniques;

Develop strategies for moving groups through the stages of group development;

Use effective intervention techniques;

Identify methods to reduce individual stress reactions associated with facilitation; and

Identify effective preparation strategies for facilitating.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED5102

Introduction to Interest-Based Negotiation

This course helps participants learn to apply a "win-win," interest-based negotiating process, resulting in favorable agreements for all parties involved. The course is interactive, giving participants an opportunity to practice techniques that are presented. College Credit: 1 semester hour.

Who should attend: Any employee who negotiates on a recurring basis.

Length: 2.5 days/20 hours

Objectives: Assess your individual negotiation style and explain what motivates people to use different styles;

Explain the difference between interests and positions in a negotiation;

Apply negotiation techniques to a variety of exercises and negotiation sessions;

Apply techniques to deal with difficult situations during negotiations; and

Apply an interest-based negotiation approach to construct optimal agreements that satisfy the interests of both parties.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7488

LED5128

Increasing Your Personal Effectiveness

Participants will learn techniques to help them deal with the challenges in today's ever changing work environment. They will assess their strengths and identify ways to fine tune them. Participants will learn how to express their views and ideas with confidence and conviction. They will gain a variety of planning and time management techniques to help them make the most of their time and achieve their goals and objectives. Participants will learn ways to help present themselves and their supervisor in the best light. College Credit: 2 semester hours. This course replaces "Survival Skills for Office Professionals."

Who should attend: Everyone.

Length: 4.5 days/36 hours

Objectives: Analyze behaviors to determine how they contribute to success or limit it;

Apply a variety of life skills to different workplace and personal situations;

Identify at least two actions needed to prepare for the changing job environment; and

Identify at least one personal development need and create an action plan to overcome it.

Availability: Annually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED5136

Applying Collaboration to Environmental Issues

This course is an in-depth study of a collaborative process for building consensus on environmental issues that are often contentious and involve multiple stakeholders. A specific model for moving beyond negotiations to shared stakeholder solutions through dialogue and trust-building is outlined and examined. Participants learn key collaborative skills and behaviors while stepping through the process model stages. Participants practice these skills through interactive training, including case studies of real issues. It is recommended but not required that participants complete LED5102, Introduction to Interest-Based Negotiations, prior to attending this course. College Credit: 2 semester hours.

Who should attend: Anyone engaged in environmental consensus-building.

Length: 4.5 days/36 hours

Objectives: Determine when the collaborative process is appropriate or feasible;

Identify ways to involve stakeholders in a community-based collaborative process;

Model skills and behaviors in partnership and outreach approaches that support long-term collaborative relationships;

Implement a collaborative process with its foundation in building community relationships and in which the complexity of the issue(s) shapes the process;

Apply the process, including associated skills and tools, to a real-life situation; and

Develop an action plan for implementing a collaborative consensus process in a real-life situation following the training.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7488

LED5127

Financial Fundamentals for Administrative Professionals

This course addresses the basic skills needed to succeed as an administrative professional with finance responsibilities. Course topics include the Federal budget cycle, types of funding, document control numbers, cost structures, obligations, logging on/off DASC, moving around in FFS, understanding the obligation tables, expenditures, understanding the expenditure tables, collections and billings, credit card, requesting reports, report errors/RDS, completing error correction forms, year-end processing, EAGLS, Internet resources, and budget reconciliation. Remote data entry is NOT covered in this course. That is covered in the companion course, "Financial Transaction Processing for Administrative Professionals" (LED5130).

Who should attend: Program assistants, office/administrative assistants, administrative officers.

Length: 4.5 days/36 hours

Objectives: Explain the steps for receiving budget allocations and the different types of appropriations and the limits on each;

Create a valid document control number and cost structure and demonstrate and explain how valid obligations and expenditures appear on financial reports;

Explain the purpose of and describe the Prompt Pay Act and the Debt Collection Act;

Explain how the Service's charge card program works and the responsibilities of a cardholder;

Demonstrate how to correct errors that appear on the financial reports;

Perform inquiries using the Federal Finance System;

Explain the purpose of the various FFS tables; and

Demonstrate how to do a year-end accrual.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED5130

Financial Transaction Processing for Administrative Professionals

This hands-on course addresses the skills needed to input and process financial transactions in the FWS financial system. Course topics include remote data entry (RDE), payroll processing, year-end processing, and an overview of the Financial/Congressional Report.

Who should attend: Program assistants, office/administrative assistants, administrative officers, and anyone who is responsible for RDE in their office/station.

Prerequisite: Participants must be able to use FFS to retrieve and locate information and have an understanding of FWS financial reports and the topics covered in "Financial Fundamentals for Administrative Professionals" (LED5127). Registrants must pass a pre-course test to be enrolled.

Length: 3.5 days/30 hours

Objectives: Enter an undelivered order in FFS;

Enter a modification to an undelivered order in FFS;

Enter a payment in FFS;

Enter a non-payroll redistribution in FFS;

Enter a payroll redistribution in FFS;

Enter a credit card adjustment in FFS;

Explain what a prior-year recovery is and how it affects a station's budget; and

Identify the appropriate time frames to retain financial documents.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED5109

Designing and Delivering a Training Session

This train-the-trainer course teaches curriculum developers and/or trainers how to design an effective training session. It covers the fundamentals of instructional design, adult learning principles, writing objectives and lesson plans, and interactive strategies to engage participants in learning. During this course, participants design and deliver their own training session. Videotaping of class presentations and constructive feedback help participants add powerful tools to their training repertoire.

Participants will have an opportunity to learn about delivery methods other than a traditional classroom approach and receive an overview of different types of distance learning as well. Other topics include: effective communication in the classroom, learning styles, dealing with nervousness, and handling difficult situations. College Credit: 2 semester hours.

Who should attend: Employees and managers who want to learn how to design and deliver an effective training session.

Length: 4.5 days/36 hours

Objectives: Apply principles of adult learning;

Select the appropriate learning strategy for course content;

Develop skill-based course objectives that meet the learners' needs;

Design an effective lesson plan to facilitate instruction;

Demonstrate a variety of methods to enhance instruction; and

Use visual aids to support instruction.

Availability: Biannually
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477

LED 5113

Creating an On-Line Course

This course teaches how to create an on-line course that will be delivered over the DOI LEARN Learning Management System. The first day is spent covering instructional design basics and how to apply them as you develop your on-line content. Working through the instructional design cycle with the content you've brought with you, you'll end up with a course you can import into the Learning Content Management System (LCMS) and see what it looks like as a student. Since 95% of the work in designing an on-line course occurs before inputting your content into the LCMS, you won't even log into the LCMS until the middle of day 2—after your content has been completed and is ready to be loaded.

Who should attend: Anyone who will be developing content for on-line delivery in DOI LEARN. You should be fairly proficient with PowerPoint and familiarity with DOI LEARN, HTML, and creating PDF documents is recommended, but not required. You should have a piece of content you are debating about offering over the Internet and bring that with you to the class.

Length: 2.5 days/20 hours

Objectives: Decide what content works best for on-line delivery;

Develop learning objectives for an on-line learning module/course;

Develop a storyboard for your content;

Create an instructional design document (IDD) for your on-line course;

Develop your on-line course content so that it can be quickly imported into the LCMS; and

Load your course onto the LCMS.

Availability: Approximately three times per year
Contact: Receptionist
Branch: Leadership & Employee Development
Phone: 304/876 7477

LED5149

Delivering a Training Session

This course covers presentation and classroom management skills for effective instruction and includes a brief overview of course design options. During this course, participants use a variety of methods and techniques to deliver their own training session content, with videotaping of class presentations and participant feedback used as evaluation tools. Participants should bring lesson plans and course materials they've already developed to this course for use in the practice sessions. College Credit: 1 semester hour. Note: This course is by request only.

Who should attend: Anyone who will be conducting training sessions and does not need course design skills.

Length: 3 days/24 hours

Objectives: Apply instructional objectives and lesson plans in a training session;

Demonstrate a variety of instructional methods to enhance instruction;

Use techniques to effectively manage the classroom environment; and

Use visual aids to effectively support instruction.

Availability: By request
Contact: Curriculum Manager
Branch: Leadership and Employee Development
Phone: 304/876 7476

LED6201

Project Leader Academy

This course covers the common knowledge and skills needed for project leaders to be successful in any program area in the Service. Project leaders will share challenges, opportunities, and solutions with their peers from across the Service. College Credit: 4 semester hours

Who should attend: Project leaders in all program areas of the Service who have been in their positions for 1 year or less as well as those who will soon become project leaders. Project Leaders in their first 12 to 18 months have first priority for enrollment; those who have been in their positions longer than 12 months must submit a request for waiver. A number of slots are reserved for participants in each of the program areas. Deputy and assistant project leaders may attend on a space-available basis.

Length: 2 weeks

Prerequisites: Applied Supervision (LED6102) or some other introductory level supervision course such an "Introduction To Supervision", "Basics For New Supervisors", or "Dynamics of Supervision".

Objectives: Lead staff so employees can achieve excellent performance;

Address performance, conduct, and/or conflict situations;

Develop employees for current job responsibilities and achieve their full potential;

Create a professional growth plan focused on developing leadership skills;

Develop and implement short and long-term strategic station plans;

Make effective decisions and/or solve problems;

Lead staff through change;

Complete field station administrative requirements;

Develop effective budget work plans and manage station programs; and

Leverage resources by developing and maintaining effective partnerships based on Service and partner goals.

Availability: Two times per year
Contact: Receptionist
Branch: Leadership and Employee Development
Phone: 304/876 7477