Wetland Delineation Certificate Series
Vegetation Identification - North and South
Methodology for Delineating Wetlands

Additional Wetlands Training
Introduction to Wetland Identification
Identification of Tidal Wetland Plants
Wetland Construction: Principles, Planning and Design

Environmental Training
Pond Design, Management and Maintenance
Restoration Ecology
Lake Management
Soils and Site Evaluation
ArcGIS ... and more!

Office of Continuing Professional Education
Since plants are the most obvious clues to wetland boundaries, you cannot delineate a wetland without experience identifying vegetation. This two-day combination classroom and field course, led by wetland expert Ralph Tiner, will teach you how to quickly and confidently identify plant species that are important in determining if an area meets the hydrophythic vegetation criterion for wetland delineation in the Northern New Jersey Region.

**Required Textbooks**
  - This textbook can be purchased on your own or through our office.
- Field Guide to Nontidal Wetland Identification, R.W. Tiner - $50
  - This textbook can only be purchased through our office.

Wetland plants, also known as hydrophytes or hydrophytic vegetation, have adaptations that enable them to grow and reproduce with their roots in water or saturated soil for at least part of the year. In contrast, plants that cannot survive in saturated conditions are commonly referred to as upland plants.

With consultants Joseph Arsenault and Theodore Gordon you will learn plant identification principles and study diagnostic characteristics of species frequently encountered by wetland delineators in the Southern New Jersey region.

**Recommended Textbooks**
  - These textbooks can be purchased on your own or through our office.
Learn the methods of the experts! This four-day course will introduce you to delineating wetlands using the Federal Interagency Wetland Delineation Manual, which is required for use in New Jersey. Techniques taught will also be applicable to individuals interested in using the 1987 Corps of Engineers Wetland Delineation Manual.

Recognize the key indicators of wetlands (hydrophytic vegetation, hydric soils and wetland hydrology) while expert instructors Ralph Tiner and Mallory Gilbert show you how to use them in following proper delineation methods. Immediately apply criteria learned in the classroom by performing wetland determinations during team field exercises.

**VEGETATION:** Analyze plant communities and identify dominant plants and indicators of hydrophytic vegetation

**SOILS:** Identify sandy and non-sandy hydric soils based on the National List of hydric soil field indicators

**HYDROLOGY:** Recognize direct and indirect indicators

**Required Textbook**

**Recommended Textbook**
- Munsell Soil Color Chart - $185

**These textbooks can be purchased on your own or through our office.**
When you delineate wetlands without the proper training or experience, you run the risk of regulatory and career repercussions. Wetlands training can be difficult to grasp if you start your education in an advanced course. Don’t make the mistake of jumping into the Methodology for Delineating Wetlands course without first being exposed to the basic principles of wetland delineation in this course!

This one-day combination classroom/field course, led by wetland expert Ralph Tiner, will teach you the basics of wetland identification and introduce you to the practice of wetland delineation. It provides the essential background material needed for further study in the field.

FEATURED TOPICS:
- Wetland definitions and concepts
- Wetland hydrology indicators
- Wetland vegetation - hydrophytic plant indicators
- Wetland soils - soil colors, hydric soil indicators
- Wetland types - wetland classification, wetland maps
- Review of wetland plant characteristics

FIELD EXERCISES:
- Wetland plant identification
- Hydric soil recognition
- Wetland hydrology indicators
- Wetland delineation

Required Textbook

**This textbook can be purchased on your own or through our office.
IDENTIFICATION OF TIDAL WETLAND PLANTS
September 25 and 26, 2017
Course Code: EH0204CA18
$515 before 9/11/17; $525 after

Whether you work in salt marshes or freshwater wetlands on the Coastal Plain, you will find this course invaluable!

This course begins with a brief introduction to wetland plant characteristics and the easy-to-use keys in the instructor’s book - “Field Guide to Tidal Wetland Plants of the Northeastern U.S. and Neighboring Canada.” The book covers over 500 plants found in saline and freshwater wetlands across the region. The rest of the course is field-oriented with hands-on learning to recognize the characteristic plants of tidal wetlands in the Mid-Atlantic region. Students work in small groups to use the keys to identify plants. Field exercises begin with trips to local salt marshes, then to brackish marshes, and end in a slightly brackish marsh where many plants common to the region’s freshwater wetlands can be found.

Join us for a day in the field with Ralph Tiner, an ecologist with over 40 years of experience in wetlands!

At the conclusion of this course, attendees will be able to identify characteristics of a wide variety of tidal wetland plants in saltwater and freshwater marshes.

**Required Textbook**
- Field Guide to Tidal Wetland Plants of the Northeastern U.S., R. Tiner - $30

**This textbook can only be purchased through our office.**
There are five basic steps in the process of developing a successful wetland construction plan. As state and federal wetland mitigation standards evolve away from an acre-for-acre approach to a focus on replacing wetland functions, your understanding of the wetland’s “wet part” has never been more critical.

**PLANNING YOUR PROJECT**
**SELECTING YOUR CONSTRUCTION MODEL**
**PREPARING YOUR WATER BUDGET & HYDROGRAPH**
**DETERMINING PROPER VEGETATION**
**MANIPULATING SOIL**

Building on your understanding of wetland functions, this course will also guide you through the many factors required to plan and design a functional wetland, such as:

**HYDROGEOMORPHOLOGY**
**WATER BUDGET CALCULATION**
**THORNTHWAITE METHOD**
**ESTIMATING STREAM FLOW**

Instructor, **Mallory N. Gilbert**, PWS, CPSS, CPESC (Mal) has been a private consultant since 1986 and has more than thirty-five years of professional experience in plant sciences, natural resources management, and wetland and soil sciences.
SOILS AND SITE EVALUATION FOR SEPTIC DISPOSAL SYSTEMS AND STORMWATER BMPs

September 18, 19 and 20, 2017  
Course Code: ES0301CA18

$795 before 9/4/17; $845 after; $725 multi-person(two or more)

Thousands of septic systems and stormwater basins malfunction for the same reason: failure to understand how water moves (or doesn’t move!) through soil. You cannot hope to design and build these structures without a down-and-dirty understanding of these soils. That’s what this hands-on course is all about.

Each day, you will spend equal time moving between lectures in the classroom and soil pits in the field, evaluating soils using your eyes, hands, and nose. You will observe, record and evaluate the site-specific soil characteristics required to write and support a complete soil log, as well as evaluate the soil and landscape data to determine design input. Most importantly, you will develop the necessary tools to determine whether a site is right – legally and practically – for a septic system or stormwater runoff Best Management Practices (BMP) facility.

Be prepared to leave with mud on your boots! Feel free to bring your own soil probing tools.

In just three days, you will learn:

- Soil fundamentals for successful septic system design and installation, stormwater BMP design, and other applications, such as wetland design and soil remediation;
- Necessary soil features for estimating seasonal high water table;
- Differences between infiltration and percolation, and how to maintain infiltration; and,
- How to be more efficient (and effective!) in choosing where to test and site BMPs and septics.

Recommended Textbook
- Munsell Soil Color Chart - $185

**This textbook can be purchased on your own or through our office.
POND DESIGN, MANAGEMENT AND MAINTENANCE  
April 21, 2017  
Course Code: EW0315CA17  
$310 before 3/31/17; $325 after  
This one-day class is for anyone involved with the design, management or maintenance of ponds! It is structured to help you make the proper decisions regarding the appearance, function or up-keep of your pond.

RESTORATION ECOLOGY  
May 12, 2017  
Course Code: EW0330CA17  
$310 before 4/28/17; $325 after  
Experienced industry leaders will focus on the multi-disciplined recovery of degraded, damaged, or impaired ecosystems (river, lake, riparian, wetland and coastal), discuss green infrastructure, elucidate FEMA’s National Flood Insurance Program Community Rating System, explain processes for reconnecting streams to floodplains, and much more.

ADVANCED STORMWATER MANAGEMENT TECHNIQUES  
October 23, 2017  
Course Code: EW0303CA18  
$295 before 10/9/17; $325 after  
Although promoted by the NJDEP, advanced stormwater management techniques still tend to be incorrectly constructed, utilized improperly or inadequately maintained. This course will focus on the design, construction and maintenance of bioretention, gravel wetland, constructed wetland and infiltration type stormwater management BMPs.

LAKE MANAGEMENT  
November 16 and 17, 2017  
Course Code: EW0301CA18  
$395 per person; $275 one-day only  
Whether you are a lake manager or resident, an ecologist or an engineer, this course will give you the training you need to properly investigate and diagnose lake quality problems, as well as the tools to develop and implement cost-effective restoration measures.

These courses are taught by Princeton Hydro, LLC staff, who have over 20 years experience in aquatic and terrestrial ecology, water resources engineering, geotechnical investigations, and a full suite of environmental services.
ArcGIS Software

ArcGIS: INTRODUCTION
October 3, 10, 17 and 24, 2017 (Tuesday evenings)
$895 per person; $795 multiple
Course Code: EG0914CA18

Test out your GIS knowledge and skill with hands-on GIS software application! This 12-hour evening course covers core functionality, basic display and map querying functions, metadata browsing and file management, basic analysis techniques, and map layout.

FEATURED TOPICS:
- Introduction to ArcCatalog
- ArcMap Basics
- Table Joins and Thematic Maps
- Setting Projections
- Attribute Selection
- Spatial Geoprocessing
- Boolean Logic

ArcGIS: EDITING & DATA DEVELOPMENT
November 2, 9, 16 and 30, 2017 (Thursday evenings)
$895 per person; $795 multiple
Course Code: EG0915CA18

If you have completed ArcGIS: Introduction, or if you are familiar with the toolbars and basic functions of Arc Map/Catalog, let us guide you through real world editing tasks and data management processes that are vital for intermediate GIS users to know.

FEATURED TOPICS:
- Creating Buffers
- Geocoding Services and Address Geocoding
- Editing Shapefiles
- Digitizing in ArcMap
- Georeferencing in Aerial Photography
- Digitizing a Parcel Map in ArcMap
- Coordinate Transformation
- Displaying Tabular X,Y Data and Creating a Relate
- Working with CAD Drawing

*Includes free 1-year online license to ArcGIS 10 software*
Recertification Credits

- ATTENTION WETLAND SCIENTISTS -

The Society of Wetland Scientists (SWS) Professional Certification Program has pre-approved many courses in this brochure for content and instruction to receive credits toward SWSPCP Professional Certification/ SWSPCP Professional Certification Renewal. Visit the individual course webpages for details: www.cpe.rutgers.edu/wetlands

ALL COURSES IN THIS BROCHURE HAVE BEEN SUBMITTED FOR ADDITIONAL RECERTIFICATION CREDITS, AS APPLICABLE.

Certified Public Works Managers
Golf Course Superintendents
NALMS Certified Lake Managers/Professionals
NJ Public Health Professionals (REHS/HO)
NJ Site Remediation Professional Licensing Board
NJ Water and Wastewater Operators (TCHs)
NJ/NY Landscape Architecture
NJ/NY Professional Engineers
NY Land Surveyors
Pesticide Applicators: NJ, NY, PA, DE, MD
Society of American Foresters

Please visit www.cpe.rutgers.edu/credits or call Bianca Kovalenko at (848) 932-7316 for specific credit information.
Testimonials

About Our Wetland Delineation Series

“I found it to be very well organized with lots of useful information. I’m already applying the skills in my day-to-day job!”

“The entire sequence of courses, taken all together, gave me what I wanted to know. I enjoyed this and learned something about a topic I knew nothing about!”

About Our Courses

“[Introduction to Wetlands] is a great hands-on introductory course. Great overview - field work was a big plus to see what was taught in class. [Will] use it on site during site evaluation.”

“Excellent for getting hands-on experience. [Wetland Construction] provided very useful information in the planning and preparation of wetland mitigation.”

“[Pond Design] is a helpful course because it provides practical recommendations based on factors including product and installation costs, likely failures, and recommended maintenance.”

About Our Instructors

“The expertise of [Ralph Tiner] is phenomenal. Best in the business!”

“[Mal Gilbert] is excellent! Very helpful and knows his stuff.”

“Steve Souza [of Princeton Hydro] kept my interest the whole time. Very knowledgeable and interesting speaker.”

- CONTACT INFORMATION -

Senior Program Coordinator
Dalynn Knigge, knigge@rutgers.edu, 848-932-7315

Administrative Assistant
Bianca Kovalenko, scardina@rutgers.edu, 848-932-7316

Payment Policy: All students must have prearranged for payment to be admitted to the class.

Cancellation & Substitution Policy: Registrants may withdraw in writing from a class up to (3) three full working days before a course begins and receive a full refund, less any materials fee or as otherwise noted on the course webpage. If the Office of Continuing Professional Education is not notified in writing at least three working days prior to the start of class, registrants may be responsible for the full fee. Substitutions are permitted.

Accommodations for Individuals with Disabilities: If you require special assistance, please notify our office when you register or no less than one week before the course starts. Every effort will be made to accommodate reasonable requests.
NJAES Office of Continuing Professional Education
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Please register me for the following:

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Method of Payment
Payment arrangements must be made prior to being admitted to the class.

☐ Check   ☐ Money Order   ☐ Authorized Purchase Order #

Proof of payment MUST be presented with this form to process your registration, payable to:
Rutgers, the State University of New Jersey

By Mail: Registration Desk, NJAES Office of Continuing Professional Education, Rutgers University, 102 Ryders Lane, New Brunswick, NJ 08901-8519.

By Fax: 732-932-8726. Please include copy of payment; original payment must be mailed.

☐ Credit Card - VISA, MasterCard, AMEX, and Discover accepted.
To pay by credit card, please visit our website - www.cpe.rutgers.edu/WETLANDS - find your course and click the "REGISTER ONLINE" button.

FOR ASSISTANCE WITH YOUR REGISTRATION, CALL 848-932-9271, option 2.