



**Soil Science in the Field  
Treehaven – Tomahawk, WI  
August 17 – 23, 2013**

*Offered by Soil Science Society of America*

The course will be held August 18 – 22, 2013. Please plan to arrive on August 17<sup>th</sup> and depart on August 23<sup>rd</sup>.

**Wetland Soils Section**

Instructor: Dr. Jay Bell (For more information: [bellx007@umn.edu](mailto:bellx007@umn.edu))



Dr. Jay Bell was born and raised in Blacksburg, Virginia and spent much of his youth hiking and fishing in Southern Appalachian Mountains. He received his B.S. and M.S. degree in Agronomy from Virginia Tech and moved on to work in surface mine reclamation research in far southwestern Virginia for four years. He completed his doctorate in Soil Science at the Pennsylvania State University in 1990. He joined the faculty at the University of Minnesota as an assistant professor in January of 1991. He has lived and worked internationally in Australia and Morocco and developed a research and teaching program focusing on the ecology of wetland soils, soil geomorphology, and applications of geographic information science to problems of soil mapping. He has taught courses in soil conservation, geographic information science, soil genesis landscape relations, wetland soils, introduction to environmental science, and soils and geology field trips around the upper Midwest. He assumed the duties of Associate Dean in July of 2007.

This section of the field school will focus on the general biology and chemistry of wet soils as it pertains to soil genesis and morphology. Upon completion of this module, participants should be able to:

- Explain the sequence of events leading to the reduction and mobilization of Fe in soil and describe soil morphological features associated with seasonally-wet soils
- Distinguish the difference between a hydric and non-hydric soils (for the soils found on-site)
- Accurately describe the morphology of a hydric soils
- Delineate the boundary between hydric and non-hydric soils in a landscape.
- Be able to identify the field indicators of hydric soils that might be present within any Major Land Resource Area in the United States.
- Explain the difference between a bog and a fen and explain processes leading to their formation
- Identify hemic, sapric and fibric textures of organic soils

**Pedology Section**

Instructor: Dr. Mike Konen (For more information: [mkonen@niu.edu](mailto:mkonen@niu.edu))



Dr. Mike Konen is currently an associate professor in the Department of Geography at Northern Illinois University and serves as the departments graduate program coordinator. He holds a Ph.D. in Soil Science from Iowa State University, a M.S. in Soil Science from The Ohio State University, and a B.S. in Agronomy from Iowa State

University. Dr. Konen is a certified professional soil scientist (SSSA) and a certified professional soil classifier (SSSA & ISCA). He is past chair of the Council of Soil Science Examiners (CSSE) and serves as a director with the DeKalb County Soil and Water Conservation District. Prior to attending graduate school, Dr. Konen worked as a soil scientist for an environmental consulting firm dealing with wetland, water quality, and waste management issues.

Dr. Konen teaches courses in Soil Science, Field Methods, Soils and Land Use Planning, Soil Profile Description and Interpretation, Physical Geography, and Pedology. He also coaches the NIU Soil Judging Team. In 2011 he was honored with the Excellence in Undergraduate Teaching Award by Northern Illinois University. His research program focuses on: human impacts on soils and landscapes; soil carbon sequestration; soil-landscape relationships in glaciated landscapes; glacial and periglacial geomorphology; paleopedology; and post-glacial landscape changes in Midwestern U.S.

This section of the field course will focus on field pedology. Upon completion of this module participants should be able to:

- Explain the concepts of soil genesis (Soil formation)
- Know the five soil forming factors and their interaction in the field
- Describe field soil morphology
- Distinguish horizon nomenclature in the field including master horizons, transitional horizons, combination horizons, discontinuities, color, texture, boundaries, etc.
- Classify soils based on field information
- Understand the relationships between soil and the landscape as well as other field factors
- Appreciate the know of above to be able to accurately map the soil on different scales

### **On-Site Evaluations Section**

Instructor: Dr. David Lindbo (For more information: [david\\_lindbo@ncsu.edu](mailto:david_lindbo@ncsu.edu))



Dr. David Lindbo is a Professor and Soil Extension Specialist with the Department of Soil Science, North Carolina State University. He has held his current position with NCSU since 1995 with the majority of that time working on hydric soils, wastewater and related issues.

Dr. Lindbo received his bachelor's degree from the University of New Hampshire, Institute of Natural and Environmental Resources, Master's degrees from the University of Massachusetts, Geology Department and the University of New Hampshire, Forest Resources Department and his PhD from the University of Massachusetts, Plant and Soil Science Department.

He has authored/co-authored numerous research and extension publications including practitioner training materials related decentralized wastewater and low impact development issues. He co-authored a general interest soil book specifically geared for elementary school children "Soil! Get the

Inside Scoop”. This book was designed to complement the Smithsonian Institution’s exhibit “Dig It! The Secrets of Soils”. Another recent book “Know Soil, Know Life” expands the previous book to a middle and high school age audience.

He is involved with the Consortium of Institutes for Decentralized Wastewater Training (CIDWT).

This section of the field course will focus on on-site evaluations. Upon completion of this module participants should be able to:

- Select suitable field sites for to Identify septic system components and types
- Install field monitoring devices
- Understand the theory and science of soil and site evaluation
- Illustrate the method for determining long term acceptance rates based on soil and site morphology

### **Field Sampling of Soils Section**

Co-Head Instructor: Dr. Robert Michitsch (For more information: [rob.michitsch@uwsp.edu](mailto:rob.michitsch@uwsp.edu))



Dr. Robert Michitsch joined the Soil & Waste Resources Discipline at the University of Wisconsin-Stevens Point in 2009. Originally from Niagara Falls, Ontario, Canada, Dr. Michitsch received his bachelor’s degree in Environmental Science and his Master’s Degree in Soil Science, both at the University of Guelph, Canada. He completed his PhD in Biological Engineering at Dalhousie University, Nova Scotia, Canada. His work there focused on bacterial pathogen fate from the composting of slaughterhouse wastes. Currently, he teaches classes in the soil and waste areas, focusing on soil/plant analysis, biogeochemistry, environmental microbiology, and waste topics. His current research interests included the compostability of plastics and polymers, compost microbiology, the breakdown of fluoropolymers, and wastewater re-use. Dr. Michitsch has been a member of SSSA for more than 10 years. He has served the society in several activities, such as the Early Careers Members Committee and as the Early Career Member representative on the SSSA Board of Directors.

This section of the field course will focus on field sampling of soils. Upon completion of this module participants should be able to:

- Understand when, where, why, and how to sample, prepare, and analyze soil samples for physical and chemical processing
- Interpret chemical results for environmental quality and soil fertility management.
- Choose and discuss analytical methods and how to sample the soil for those methods.
- Discuss the biological soil components, how soil samples are prepared for such analyses, and interpret biological results.

## **General Soil Science in the Field Section**

Co-Head Instructor: Dr. Mary E. Collins (For more information: [mec@ufl.edu](mailto:mec@ufl.edu))



Dr. Mary Collins is an Emeritus Professor in the Soil and Water Science Department at the University of Florida. She earned her B.S. degree from Cornell University and her M.S. and Ph.D. degrees from Iowa State University. Dr. Collins served as the Florida Agricultural Experiment Station (FAES) representative to the National Cooperative Soil Survey Program. She was on many state and national committees including being appointed to the advisory committees of the USDA -National Soil Survey Center and to the Director of the Soil Science Division. She also served on the National Academies –National Soil Science Committee. Her research has involved basic and applied pedological approaches to urban soils, forensic soils/archaeology, soil electrical properties and ground-penetrating radar, and hydric/subaqueous soils. She served as President of SSSA, Chair of the SSSA Budget and Finance Committee, Chair of Division S-5, and 2<sup>nd</sup> Vice-Chair of Division 1 International Union of Soil Science. Currently, Dr. Collins' responsibilities include teaching undergraduate and graduate distance education hydric soils courses. She is a Fellow of ASA and SSSA.

This section of the field course will focus on general soil science in the field. Upon completion of this module participants should be able to:

- Have a better understanding of soils under different field conditions
- Know and be able to identify the field relationships of soils
- Have a working knowledge of soil science vocabulary especially field terms
- Know from whom to obtain permission to dig a “hole”
- Know where and how to dig an “appropriate hole” for field work
- Identify what field equipment is needed to successfully complete different soil investigations
- Conduct field investigations with confidence