

# Riparian Systems: Ecology, Function and Management

January 8 – March 5, 2013

*CEU Short Course offered by the Soil Science Society of America*

**Primary Instructor:** Dr. Dawn R. Ferris, PSS (MN) and CPSS  
Soil Science Program Coordinator  
Soil Science Society of America  
Madison, Wisconsin  
608-819-3900  
dferris@soils.org

**Additional Instructors:** Guest instructors may be added periodically.

## **Course Description:**

The objective of the course is to provide the student with a basic understanding of the complexities and challenges inherent in riparian systems while at the same time emphasizing the importance of these dynamic systems within the landscape. Concepts to be covered include influences of hydrology and geomorphology, structure and diversity, biophysical connections, disturbance and response to change, as well as management, conservation and restoration of riparian systems. This course is taught via distance learning, and the instructor will supplement lecture readings and materials with additional readings and examples to illustrate the concepts and provide examples of how the concepts are used in practice.

## **Class Schedule/Time:**

Consecutive Tuesdays starting January 8 for eight weeks; the course will conclude on Tuesday, March 5, 2013. Each class period will be 1.5 hours in length with a 5 minute break approximately half way through the class.

Class times will be Noon to 1:30 PM Eastern/ 11:00 AM to 12:30 PM Central/ 10:00 AM to 11:30 AM Mountain/ 9:00 AM to 10:30 AM Pacific.

Class periods will include the opportunity to ask questions during the lectures via a question log. Questions from the question log and the answers will be posted on the course website within a few days of the lecture.

To achieve the greatest benefit from this course, students will be expected to spend time reading and studying the assigned materials, completing the quizzes, and attending all the classes. The instructor may be contacted at any time via email with questions or comments.

## **Communications Requirements**

- High-speed internet connection
- Email address
- PC headset with microphone or PC microphone

**Required Textbook** (to be purchased or obtained by the student)

Riparia: Ecology, Conservation, and Management of Streamside Communities. 2005. R.J. Naiman, H. Decamps, and M.E. McClain. Elsevier Academic Press. 430 pp.

Note: This book is available on Amazon in hardcover and also Kindle (for purchase or rent), Elsevier offers the text as a hardcover or ebook, and other booksellers sell it as well.

**Student Directory Information**

Student name, city/state/country, phone, and email will be included in a listing on the course website and will be available *only* to other Soil Science Fundamentals students and those administering the course. Students can opt out of this listing when registering for the course.

**Grading**

A ten question quiz will be offered weekly that covers the materials from the previous week, available for students to take on-line during their own time. Individual performance on weekly quizzes will be provided confidentially to students to give an indication of the mastery of various topics. **No make-up quizzes will be offered.** There will not be a final exam for this course, and grades will not be assigned. Students who complete all 8 quizzes or accumulate at least 56 of the 80 quiz points (70%) can request a certificate of completion for the course. Missed quizzes will count as zero. Certified individuals seeking Continuing Education Units (CEUs) must achieve a passing score (at least 7 of 10) on a quiz to get credit for that particular session.

Quizzes will be posted on the class website by Thursday each week and will be due the by the Monday following the next class (or 12 days later). **Access to quizzes will close at 11:59 PM central time; you will need to have completed AND submitted the quiz by that time in order for it to be assigned a score.** Print out your quizzes before you submit them for your reference and in case a score isn't recorded to be able to show that you took it. Note: The system allows you to take quizzes multiple times, but only your first score is counted.

*Please make sure that you keep up with the quizzes! See class schedule (below) for availability and due dates of quizzes.*

Quiz answers will be posted on the class website; the last two quizzes will be reported after the course has ended, but questions can be emailed to the instructor.

**Class Web Site**

Students registered for the course will have access to the class web site where the following will be posted:

- Lecture video recordings; audio with PowerPoint slides
- PowerPoint slides in pdf format
- Link to quizzes and answer keys to quizzes

Access to the class web site will begin January 3 and end one month following the last class period; April 5, 2013.

**Class Schedule: Topics, Reading, and Quizzes (subject to modification):**

<b>Week</b>	<b>Topics</b>	<b>Reading Assignments to Supplement Lectures**</b>
<b>1</b>	<b>Riparian Systems: An Overview</b>	Reading assignments refer to the required text by Naiman et al.
January 8	Introduction and housekeeping items  An overview of riparian systems, their complexities and the importance of these communities in the landscape.	Forward, Preface and Chapter 1  Quiz 1 available January 10
<b>2</b>	<b>Geomorphology and Hydrology</b>	
January 22	Physical environment: watershed concepts and influence of geomorphic/hydrologic principles.	Chapter 2  Quiz 2 available January 24
<b>3</b>	<b>Classification of Riverine and Riparian Systems</b>	
January 29	Overview of classification and typology related to riverine and riparian systems with an emphasis regarding riparian areas, their complexity, and dynamic character.	Chapter 3  Quiz 3 available January 31
<b>4</b>	<b>Structure and Diversity</b>	
February 5	Distribution, structure and diversity of riparian communities based on soils and plants.	Chapter 4  Quiz 4 available February 7
<b>5</b>	<b>Biotic and Biophysical Functions</b>	
February 12	Flux of water and nutrients in riparian systems, plant ecology and decomposition.  Begin biophysical connectivity in riparian zones.	Chapters 5 and 6  Quiz 5 available February 14
<b>6</b>	<b>Biophysical Functions and Disturbance</b>	
February 19	Finish biophysical functions including a look at ecological functions and energy flow.  Disturbance to riparian areas and responses to change.	Chapters 6 and 7  Quiz 6 available February 21
<b>7</b>	<b>Management and Conservation</b>	
February 26	Components of riparian management and conservation, linkages to overall watersheds and relationship to the human dimension.	Chapters 8 and 9  Quiz 7 available February 28
<b>8</b>	<b>Restoration and Course Wrap Up</b>	
March 5	Considerations in restoring degraded systems including assessment, strategies and management.  Final comments on riparian systems and management.	Chapters 10 and 11  Quiz 8 available March 7

### Quiz Due Dates:

Quiz 1	January 21
Quiz 2	February 4
Quiz 3	February 11
Quiz 4	February 18
Quiz 5	February 25
Quiz 6	March 4
Quiz 7	March 11
Quiz 8	March 18

### Instructor

#### **Dr. Dawn Ferris**

Dr. Dawn Ferris joined the SSSA staff in July 2010 as the Soil Science Program Coordinator. Most recently she was faculty at The Ohio State University in the School of Environment and Natural Resources (SENR) where much of her research was located in Iceland studying successional landscapes, restoration and soil carbon. She still maintains an adjunct faculty position within SENR. Prior to her position at OSU, Dr. Ferris spent the majority of her career in environmental consulting and, for a shorter time, in county government where she spent much of her time working in watershed management, natural resource management, environmental review documents and permitting. During her career she has, among other things, owned her own consulting business, managed the MN office of Tetra Tech, and traveled across the U.S. as part of her work. She has a B.S. in soil science from the University of Wisconsin, a M.S. in soil physics and a PhD in Forest Hydrology from the University of Minnesota. Dr. Ferris is both a licensed and certified soil scientist and has worked on issues surrounding the implementation of these programs since the early 1990s.

Briefly, some of the primary objectives of Dr. Ferris's position with SSSA include overseeing the soil science licensing and certification programs for SSSA (including legislative issues), facilitating continuing education for soil scientists, and to overall help to grow the soil science profession by working with and facilitating communication between the private sector, government and academia.