**Syllabus and Schedule**

# CSES 5864

Advanced Wetland Soils & Mitigation

John Galbraith

Summer I and II Terms, Even years

**Course Description:** Wetland soils as components of natural landscapes and their interactions with hydrologic systems. Hydric soil identification and delineation, preparation of wetland water budgets, restoration of damaged wetlands, and creation of compensation wetlands. Constructed wetlands for nutrient removal and acid mine drainage treatment. Pre: 5114. (3H, 3C).

**Overall Learning Objectives:**

Upon completion of the course, students will be able to:

1. Discuss and apply legal and scientific wetland terms, concepts, and regulations.
2. Relate the chemical, physical, biogeochemical, and morphological characteristics of wetland soils to their location, role, and function in the landscape.
3. Identify individual wetland soils based upon use of Hydric Soil Indicators, *Soil Taxonomy*, and other appropriate techniques to currently accepted federal/state regulatory standards.
4. Apply essential principles of wetland restoration and creation to develop a proposed mitigation site design and develop site-specific success criteria.
5. Design appropriate soil and hydrologic monitoring and study procedures for natural and created wetlands, including appropriate GIS/GPS technologies.

**Getting Started:** You should start by familiarizing yourself with the entire CANVAS course site (Enter at: <https://canvas.vt.edu/>) with your VT PID and password. Don't look deeply into content during this overview- just glance over the pages so you know what is there. You can do this by clicking on the links on the left-hand side of the web pages.

On the main page, look for **announcements and calendar** blocks where you will find all of the important announcements posted throughout the semester. We will keep everyone current by posting frequent updates to this page. Blackboard will also allow you set the announcements to show up on your entry page as a default if you wish.

The course schedule is located in the **Resources Folder** and then in the **Course Information** subfolder. Print this page out for reference. All of the due dates for assignments and exams will be here, as well as what lecture should be covered by when. On this page you will also find more information about the course, computer access issues, and other important postings.

The **Course Documents** page is your link to the majority of learning materials associated with this class. On this page, you will find a link to every presentation in the course, sample tests and answer keys, and important associated “handouts”. The presentations are in Adobe Presenter format, which you should be able to open and view with most web-browsers and an up-to-date version of Flash Player. A color PDF version of the presentations will also be provided in a separate folder if you want to print out a hard copy of the presentation slides.

The **Assignments** folder within Course Documents contains required and supplemental readings, the problem sets and the term paper assignment. *It is particularly important that you keep up with the required readings assignments* since they are also “fair game” on the exams. Important links to course-related websites and documents are found on the **External Links** folder.

Back on the main CANVAS entry page, links to two other important features, your **Gradebook** and **Tests & Quizzes** appear on the left hand side. These will allow you to see your grades on tests and problem sets and download test files.

**Software and Hardware:** A reasonably fast computer capable of running the most current version of Internet Explorer (Windows, Macintosh) or Mozilla Firefox are required for this course. The latest version of: *Adobe Acrobat, Apple QuickTime, and Macromedia Flash* may be necessary to view the Presenter presentations, handouts and video links (from the lab support site)*.*

You will also need a DSL or broadband connection to view the lecture presentations and download files without undue delays.

## Required Text:

1) Textbook: Vepraskas, M.J. and C.B. Craft (eds.) 2015. Wetland Soils: Genesis, Hydrology, Landscapes and Classification. 2nd Ed. CRC Press, Boca Raton, FL. 508 pp. ISBN 9781439896983

2) Required Pamphlet: You must request a printed copy of Hydric Soil Indicators Ver. 7.0 at the http://nrcspad.sc.egov.usda.gov/DistributionCenter/ site and search for "hydric soil." After you get it, make the errata changes posted. Bring this to labs and class.

**Supplementary Readings:**

1. Technical references on-line:
   1. Chapters from the previous textbook posted on CANVAS
   2. Technical Note 11 Hydric Soil Technical Standard
   3. Technical Note 13 Altered Hydric Soils
   4. Hydric Soil Indicators Ver. 7.0 and errata,
   5. Atlantic & Gulf Coastal Plain and Eastern Mountains Regional Supplements to 87 COE Wetlands Delineation Manual.
   6. Field Guide for Describing and Sampling Soils Ver. 3.0
   7. Vepraskas, M. J. 1995. Redoximorphic Features for Identifying Aquic Conditions. NC Agric. Research Serv., Tech. Bull. 301, Raleigh. Can be purchased for post-grad or professional work.

You will also have required literature and report readings posted to the Course Documents page.

## Course Schedule: See separate posted file. Grading:

Two exams: 40% (20% each) Participation in discussion/field trip: up to 10% extra credit Local project: 20%

Final exam 20%

Research Paper: 20%

**Field Trip:** An extra credit field trip will be held in Oct. or Nov.

You are encouraged to attend and submit a report for participation credit.

You are invited to take part in the discussion group for credit. Either discussion or field trip earns up to 10% extra credit. A term paper can gain extra credit also.

Detail on all assignments and expectations can be found on the **Assignments** link on the topics menu.

## Course Procedures:

Begin by opening the course **Home** page and following the directions there. You will see the links to the **Syllabus & Schedule**, the **Modules** (weekly activities and lesson plans), and a **Learner Support** page. While this is an entirely on-line course, it is not self-paced. You must follow the weekly course schedule as posted under the **Modules** link on the topics menu. Therefore, it will be very important for you to complete your assigned readings, on-line lectures, and associated supporting laboratory materials well in advance of each test date.

Your exams will be short answer plus essay type, and will be administered via CANVAS with a timed returned between noon Eastern Time (ET) Wednesday and noon ET Saturday of each week as posted. During this 72 hour period, you will be allowed to take up to three hours to complete the open book/notes examinations. Detailed instructions and procedures will be posted to the **Assignments** page.

The local project will be posted to the **Assignments Page.** You must work on the project by yourself without assistance from other students or colleagues.

Your instructors will be available via Email or phone to assist you with questions. You may submit these assignments to us via an Email attachment, Fax, or regular mail. We will grade them within one week and post the scores. We will return marked-up copies of your problem sets upon request and we will post answer keys.

The **Research Paper** assignment is posted to the **Assignments Page** and you will have a number of benchmark submittals associated with its development.

You will choose (and we will approve) a topic of interest to you that is related to one or more of the hydric soils and wetland science topics we will cover this term. We will also link you to literature research skills assistance from the Virginia Tech Library staff (Ms. Margaret Merrill) who will assist you with finding pertinent literature and supporting information. A sample research paper that fully meets our guidelines will be posted to the Assignments page.

## Policy on Missed Deadlines:

Alternate exam dates and/or make-up assignments will be authorized only when confirmation of the conflict is provided to the instructor(s) well in advance of the due dates. Valid conflicts might include out-of-town business travel (not personal trips) and other significant work-related obligations that are pre-approved by the instructors. Personal and/or family illness issues will be handled on a case-by- case basis.

## Religious/Ethnic Holidays:

*We are pleased to make accommodations for anyone who will miss a(n) quiz/exam/assignment because of a religious or ethnic holiday.* Please refer to the list of religious and ethnic holidays posted by the University Registrar which are the ones we will honor as well.

If you wish to reschedule because of a conflict with one of these holidays, please send an E-mail note to the instructor at least one week before the due date of the assignment, tell us that you are requesting to reschedule for religious or ethnic reasons, specify the day in conflict and the holiday that you observe. We will return your message with information on making up the assignment.

## When Grades Will be Posted:

Exam scores will be posted within one week of the completion of the 72 hour exam block.

Problem set grades will be posted within one week of their due dates.

The project paper will be graded and posted by close of the Virginia Tech final exam period.

**Virginia Tech Honor Code:** We will abide by the Virginia Tech Honor System, which is described in the current Undergraduate Catalog. **YOUR ATTENDANCE AT A TEST OR YOUR SUBMITTAL OF ANY WRITTEN OR ELECTRONIC MATERIALS SHALL BE YOUR PLEDGE THAT YOU SUBSCRIBE TO AND ACCEPT THE VIRGINIA TECH HONOR CODE AND HONOR SYSTEM.**

You are expected to:

* Complete all written or electronic assignments independently and without assistance.
* Turn in all assignments on time or with a documented excuse if they are late.
* Report any Honor Code violations that you have directly observed, including cheating on exams.

On-line Constitution of the Virginia Tech Honor System (link)

## Communication:

We intend to use Email as our primary tool for routine communications with you. Please send Email to the instructors for course-related questions and issues only. Our office phone numbers listed on the Staff Information page. You are encouraged to call us during our posted office hours when possible. You are also welcome to visit us in Blacksburg if you’re in the neighborhood!

Some things for you to know about email communication with us:

1. Please put 5864 in the subject heading of your email.
2. It is usually relatively instantaneous but not always. *Sometimes it may take hours or even as long as a day or two for us to receive an email message*.
3. We get a lot of email. *You are important to us*, but because of the volume of mail, it may take a while for us to respond. Please be patient in getting a response.
4. Make sure we received your message if it is important to you. *Send a follow- up message if you haven't heard back in 48 hours*.
5. CALL or see us personally *if it is really important*. Galbraith: 540-231-9784 office; 540-392-1184 cell and text.

**Frequently Asked Questions:**

How often should I check my email? Every day! We send out important information via email.

Do I need to follow the Course Schedule? YES! The course schedule is set up to help guide you through this course at a steady pace. You will fall behind if you do not keep up with it.

Do I have to listen to the audio on the Presenter presentations? It is VERY IMPORTANT that you listen to the audio. The audio contains critical information that is not on the slides or in the text. Listening to the audio helps you to learn the material better, and makes it seem more like a "class". We believe that having the supplemental audio is better than having the slides alone. You get to actually hear us explain graphs & charts, and give you examples.

I don't live in the Eastern Time zone. Are the times for taking exams and quizzes different for me? No. All times are Eastern Time (ET) and all students should conform to this time zone. For example, tests will be available for a 72 hour period from noon ET until noon ET three days later.

Is there a way that I can print out the presentations? Yes! You can download a printable PDF file of each lecture from a separate folder in the **Course Documents** section.