# Concepts in Watershed Hydrology (FOR 296)

Instructors: Virginia B.C. Williams, Dr. Peter Black

Summer 2010

**Course Overview**

Welcome to Concepts in Watershed Hydrology. This course was developed for all who wish to learn about our precious water resources. The course is an introduction to the distribution and movement of water throughout the Earth, as it interacts with the atmosphere, living organisms, and the physical earth. Through concise and thorough modules utilizing educational and government websites, PowerPoint ® units, and scientific papers, participants will explore topics including water budgets and major storages and flows of water on the earth (precipitation, evaporation, runoff, urban stormwater, soil storage, etc.). This course will increase participant understanding of water in the environment and allow you to fully participate in sound watershed management decision-making. It will provide a foundation on which participants can better understand timely issues such as urban runoff generation, green infrastructure, rain gardens, and stream restoration. The course initially was developed by Dr. Peter Black, Distinguished Teaching Professor of Water and Related Land Resources, as an outreach course to strengthen understanding of hydrology and water resources among the community. This 1-credit course is an extension of his work.

**Course Materials**

I have created presentations, and compiled valuable government, non-profit, and educational websites on watershed and hydrology concepts and management for weekly resources in this course. In addition, I have utilized watershed hydrology modules created by Professor Emeritus Peter Black, from SUNY ESF. These modules were created to give novices and practitioners a chance to delve into important watershed functions, and are a great introduction. There is a plethora of valuable resources out there, so if I missed anything particularly valuable, I welcome your suggestions and feedback along the way!

**Course website**

http://blackboard.syr.edu. All log-in information (name and password) will be provided prior to the start of the semester. NOTE: You cannot access the website until you have this information. Once you have signed into the blackboard website, you will see Concepts of Watershed Hydrology under My Courses. Click on the course name to access the course website.

**Faculty Contact Information**

This course is primarily taught by Virginia B.C. Williams, Adjunct Instructor in the Forestry Department of SUNY ESF. I can be reached at my office on the SUNY ESF Campus, in 215

Marshall Hall most days of the week (M-Th, 8-4:00) by calling 315-470-6818. I also check my email at least several times per day. Please try reaching me at vwilliams@esf.edu.

Additionally, Dr. Peter Black, Professor Emeritus (retired), has been instrumental in developing a portion of this course. We will use his online modules for the asynchronous component of this course. He is extremely knowledgeable, very friendly and has over 50+ years of hydrology experience. He can be reached at peblack@esf.edu, or at 315-470-6571.

**Assignments**

Students are expected to either attend the synchronous sessions with the instructor, or review the recording of this session every week, for the 6-week duration of the course. These sessions are the main substance of the course. There may be extenuating circumstances that make lead to students not participating these weekly sessions. However, whenever possible I recommend you attend these sessions, which allow for instantaneous feedback and Q and A, which allows for richer understanding of the material. Weekly quizzes/homework will be used to assess student learning of the material, and will be due six days after the lecture presentation at 11:59 pm (see schedule below). Students will be expected to both review the powerpoints covered in the sessions, as well as additional work required to learn the material. The " behind-the-scenes" work required for quiz/homework submission is approximately 1-2 hours.

Assignments are posted at the end of each weekly powerpoint presentation, as well as in a separate document posted under each weekly Unit folder on the course website.

**Grading**

- 100% - Weekly quizzes/homework assignments (15 points per assignment each week)
- For every day an assignment is late, the grade will be reduced by three points (20%).
- Incomplete assignments will be deducted points as appropriate. Assignments are due by 11:59 six days after the lecture, or the night before the subsequent lecture (see schedule below)
- As you will hopefully find out, I am a pretty flexible and understanding person. If something comes up that keeps you from turning in your assignment on time, please let me know. Communication of conflicts is key.

**Learning Outcomes**

At the end of this course, students will be able to:

1. Describe the hydrologic cycle, and all major storages and flows within it.
2. Define the term watershed
3. Demonstrate ability to delineate a watershed by hand.

4. Describe all the abiotic and biotic functions of a watershed and why each is important to watershed managers.
5. Describe your individual role and responsibility in watershed management
6. Describe the purpose of watershed management.
7. Demonstrate the ability to access data from governmental websites for precipitation and stream flow
8. Describe the current human alterations to each major storage and flow in the hydrologic cycle.

**FOR 296: Concepts in Watershed Hydrology Course Calendar**

| UNIT | Weekly online session 12 – 1:30 PM | Homework due 11:59 PM | Topic(s) |
|---|---|---|---|
| 1 | Thurs, 7/15 | Tues, 7/20 | Introduction, overall hydrologic cycle, course expectations |
| 2 | Thurs, 7/22 | Tues, 7/27 | Watershed delineation, precipitation and evapotranspiration |
| 3 | Thurs, 7/29 | Tues, 8/3 | Stream flow and urban hydrology and infiltration |
| 4 | NA ¥ | Tues, 8/10 | **Watershed functions:** Collection, storage, discharge, Chemical, habitat, attenuation |
| 5 | NA ¥ | Tues, 8/17 | **Watershed functions:** Flushing, soil storage, Water balance, resource buffer theory, watershed management |
| 6 | Thurs, 8/19 | Tues, 8/24 | Watershed management, and final review |

¥ The weeks with meetings labeled NA means these are asynchronous (not real-time) sessions. The powerpoint presentations available for these weeks include a pre-recorded audio-track. Assignments are still due before the beginning of the following week.
Final grades will be sent to you via email by the end of August, 2010

# How to sign in to weekly sessions on Blackboard and Adobe Connect, and to access recorded sessions

**To sign into the weekly session:**

I will send everyone an email the day before each class starts. In this email, there will be a link to the online course meeting. Right before class starts, click on the link, sign in, and come and "meet" me and your classmates online.

To access the recorded sessions:

Sign in to the blackboard website ( http://blackboard.syr.edu , NOTE: There is no www in this link. It will not work if you write www). You will see our course listed under your list of courses. Select Concepts/Watershed Hydrology. You will be taken to the main screen. To the left-hand side, you will see green buttons with names such as "About this course", "Syllabus", " Units", and so on.

- Select the "Units" button, to access weekly course material, including the recorded meeting session. Each week, a new unit will come online.
- If you click on any unit, the first folder will have the following name: Online class meeting link. Here will be both the link to the original class meeting, as well as the recorded online session.
- To access the recorded session, just click on the link provided under the heading "Recorded session for unit".
- Sit back, relax, and enjoy the show!
- NOTE: The recording of the session will not be posted until an hour or two after the actual session ends, but will be posted by 4:30 pm on Thursday.

# How to post your assignments on Blackboard

Your grade for this course is based on the quality of homework assignments for each unit. I anticipate you will learn how to post fairly quickly, but please utilize this document to help you through the first few times.

**Discussion Boards posting**

You can access the space for posting in blackboard by clicking on the "Discussion Board" button (green button panel to the left) on the left hand side of the blackboard interface. This will open up the discussion board. You may see a list of forums named Unit1, Unit 2, etc. Under the description of the forum for each unit, I will include the assignment. You will select the forum with the name of the unit on which we are currently working. To start off, click on the forum name Unit 1: Introductions. This should take you to the threads page. To post your assignment, click on the "Create Thread" button near the top of the page. This will take you to the create threads page. You will need to give your thread posting a subject/name, as well as post your answers to the assignment. For your subject, I would like you to put your first and last name. In the message portion of the thread you will put the answers to the assignment. You can do this one of two ways:

1. Type your answers in a word document or other word processor, and then copy and paste into this message board, or
2. Type directly into the message board

I suggest the first option, because then you can SAVE your answers first, and then copy and paste into the message board. Blackboard can be finicky at times, and we don't want you to accidentally lose your assignments. So please create and save your assignments in a word processor prior to posting on blackboard.

In order to actually POST your assignments, you will have to click on the SUBMIT button at the bottom of the "create thread" page before navigating away from this page, otherwise your work will be lost.

If appropriate, you may wish to comment on the work of your classmates. In order to do so, you will need to first read their threads. Then, once you read their thread, select the "reply" button in the thread detail page, and draft your response.