

# BSE 3324 – Small Watershed Hydrology

Fall 2016

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**Instructor:** Dr. Venkat Sridhar, P.E., D. WRE

**Teaching Assistant:** Tyler Keys

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**Office Hours:** TuTh 2:00-3:00 PM

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**Email:** [vsri@vt.edu](mailto:vsri@vt.edu) (expect a response in about 48 hours M-F)

Remember, email is best suited to quick communication regarding class attendance and minor concerns. For more substantive issues, please come to office hours. Please consult the following guidelines before sending me an email: <http://www.wikihow.com/Email-a-Professor>

**Phone:** 540-231-1797

**Course Meetings:** TTh 9:30-10:45 AM, 105 Seitz Hall

**Course Co-requisites:** ESM 3024 Introduction to Fluid Mechanics or equivalent.

**Required Text:** Bedient, P.B., W.C. Huber, and B.E. Vieux. 2012 *Hydrology and Floodplain Analysis*, 5<sup>th</sup> Edition. Prentice Hall: Upper Saddle River, NJ. Pp. 816.

**Required Equipment:** None

## **Additional Resources:**

USDA-NRCS. 2007. *National Engineering Handbook: Part 630 - Hydrology*. U.S. Department of Agriculture, Natural Resources Conservation Service: Washington, DC. Available at: <http://policy.nrcs.usda.gov/viewerFS.aspx?id=2572>

McCuen, R., 2005 *Hydrologic Analysis and Design* by, Third Edition, Prentice Hall ISBN-0-13-142424-6

**Class Website:** Canvas (<https://canvas.vt.edu/courses/31164>). Check the course website daily for course announcements, updates, and reminders.

**Learning Objectives:** Having successfully completed this course, the student will be able to:

- Describe and represent the components of the hydrologic cycle mathematically and discuss scientifically how the various components interact;
- Define and obtain values of soil physical properties for hydrologic calculations and engineering design;
- Define, calculate, and use the return period of a storm or other event in engineering design;
- Estimate peak runoff rates and total runoff volumes from watersheds for use in water resources engineering design;
- Route flood waves through channels and reservoirs;
- Design grassed waterways and earthen channels;
- Communicate a familiarity with the structure and functions of natural stream systems; and,
- Demonstrate knowledge of water-related legislation, contemporary issues, and professional engineering ethics related to water resources.

**Grading and Evaluation:** Each student's grade in the course will be determined as follows:

Assignments	30%
Two tests	40%
Final exam	25%
Quizzes	5%

**Course Policies:**

An overall grade of C- is required for students pursuing a degree in Biological Systems Engineering. It is expected that students will not disturb or distract others or in any way interfere with the ability of other students to learn the course material. Individuals whose actions create a distraction or disturb other students or the instructors will be asked to cease the disrupting activity or leave the classroom. Use of electronics (laptop, iPad, cell phone, etc.) is strictly prohibited in the class unless the students are otherwise notified. If students would like to take notes on an electronic device, the screen must not be kept in a vertical position or otherwise readily visible to other students.

**Submitted Homework Assignments:**

Homework must be prepared and presented in a professional manner via Canvas. Due dates will be given on each assignment. Grades on late homework will be reduced by 10% of the total available points for that assignment, each day (24-hour period) that the assignment is late. Late submission beyond 3 days will not be accepted.

**Disability Statement:**

Reasonable accommodations are available for students who have a disability. Students should contact the Services for Students with Disabilities (SSD), 150 Henderson Hall, 231-3788 (V), 231-1740 (TTY); Susan P. Angle, [spangle@vt.edu](mailto:spangle@vt.edu), [www.ssd.vt.edu](http://www.ssd.vt.edu). "Students with disabilities are responsible for self-identification....To be eligible for services, documentation of the disability from a qualified professional must be presented to SSD upon request. Academic adjustments may include, but are not limited to: priority registration, auxiliary aids, program and course adjustment, exam modifications, oral or sign language interpreters, cassette taping of text/materials, notetakers/readers, or assistive technology."

**Honor Code Statement:**

The Undergraduate Honor Code pledge that each member of the university community agrees to abide by states:

"As a Hokie, I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."

Students enrolled in this course are responsible for abiding by the Honor Code. A student who has doubts about how the Honor Code applies to any assignment is responsible for obtaining specific guidance from the course instructor before submitting the assignment for evaluation. Ignorance of the rules does not exclude any member of the University community from the requirements and expectations of the Honor Code.

For additional information about the Honor Code, please visit: <https://www.honorsystem.vt.edu/>

### **Honor Code Pledge for Assignments:**

The Virginia Tech honor pledge for assignments is as follows: "I have neither given nor received unauthorized assistance on this assignment."

### **The pledge is to be written out on all graded assignments at the university and signed by the student.**

The honor pledge represents both an expression of the student's support of the honor code and an unambiguous acknowledgment that the student has, on the assignment in question, abided by the obligation that the Honor Code entails. In the absence of a written honor pledge, the Honor Code still applies to an assignment.

1. All assignments submitted shall be considered "graded work" and all aspects of your coursework are covered by the Honor Code. All projects and homework assignments are to be completed individually unless otherwise specified.

2. Commission of any of the following acts shall constitute academic misconduct. This listing is not, however, exclusive of other acts that may reasonably be said to constitute academic misconduct. Clarification is provided for each definition with some examples of prohibited behaviors in the Undergraduate Honor Code Manual located at <https://www.honorsystem.vt.edu/>

#### **A. CHEATING**

Cheating includes the intentional use of unauthorized materials, information, notes, study aids or other devices or materials in any academic exercise, or attempts thereof.

#### **B. PLAGIARISM**

Plagiarism includes the copying of the language, structure, programming, computer code, ideas, and/or thoughts of another and passing off the same as one's own original work, or attempts thereof.

#### **C. FALSIFICATION**

Falsification includes the statement of any untruth, either verbally or in writing, with respect to any element of one's academic work, or attempts thereof.

#### **D. FABRICATION**

Fabrication includes making up data and results, and recording or reporting them, or submitting fabricated documents, or attempts thereof.

#### **E. MULTIPLE SUBMISSION**

Multiple submission involves the submission for credit—without authorization of the instructor receiving the work—of substantial portions of any work (including oral reports) previously submitted for credit at any academic institution, or attempts thereof.

#### **F. COMPLICITY**

Complicity includes intentionally helping another to engage in an act of academic misconduct, or attempts thereof.

#### **G. VIOLATION OF UNIVERSITY, COLLEGE, DEPARTMENTAL, PROGRAM, COURSE, OR FACULTY RULES**

The violation of any University, College, Departmental, Program, Course, or Faculty Rules relating to academic matters that may lead to an unfair academic advantage by the student violating the rule(s).

### **Virginia Tech's Principles of Community:**

Virginia Tech is a public land-grant university, committed to teaching and learning, research, and outreach to the Commonwealth of Virginia, the nation, and the world community. Learning from the experiences that shape Virginia Tech as an institution, we acknowledge those aspects of our legacy that reflected bias and exclusion. Therefore, we adopt and practice the following principles as fundamental to our on-going efforts to increase access and inclusion and to create a community that nurtures learning and growth for all of its members:

- We affirm the inherent dignity and value of every person and strive to maintain a climate for work and learning based on mutual respect and understanding.
- We affirm the right of each person to express thoughts and opinions freely. We encourage open expression within a climate of civility, sensitivity, and mutual respect.
- We affirm the value of human diversity because it enriches our lives and the University. We acknowledge and respect our differences while affirming our common humanity.
- We reject all forms of prejudice and discrimination, including those based on age, color, disability, gender, national origin, political affiliation, race, religion, sexual orientation, and veteran status. We take individual and collective responsibility for helping to eliminate bias and discrimination and for increasing our own understanding of these issues through education, training, and interaction with others.
- We pledge our collective commitment to these principles in the spirit of the Virginia Tech motto of Ut Prosim (That I May Serve).

### **BSE 3324 – Fall 2016 Course Schedule**

(The schedule of topics listed below is subject to change)

<b>Date</b>	<b>Topic</b>	<b>Chapter</b>
Week 1		Ch 1
Week 2		Ch 1
Week 3		Ch 2
Week 4		Ch 2,3
Week 5		Ch 3
Week 6	Test 1	Class Time; Wk 1-5
Week 7		Ch 6
Week 8		McCuen 7
Week 9		Ch 8
Week 10		McCuen 8
Week 11	Test 2	Class Time; Wk 6-10
Week 12		Ch 9
Week 13		McCuen 12
Week 14		McCuen 14
Week 15		Revision
<b>12/15</b>	<b>Final Exam</b>	<b>10:05AM-12:05AM</b>

Assignments are due once a week in general. There will be more than one assignment in some weeks. A total number of assignments over the semester is approximately 14-18.