

BSE 2384
Soil and Water Resources Management
Spring 2011

Professor:

Dr. Tess Wynn

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Office Hours: M 4:00 pm – 5:30 pm
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Teaching Assistant:

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Course Meetings: Tuesday-Thursday 3:30-4:45 pm, 108 Seitz Hall

Course Description: Fundamental principles involved in the management of soil and water resources are presented. Emphasis is placed on control of soil erosion on agricultural lands, and planning and management of irrigation systems.

Course Pre-requisites: Pre: MATH 1015

Required Text: Jarrett, A.R. 2008. Effectively Managing Water. Agricultural and Biological Engineering, Pennsylvania State University, 1st Edition.

Additional Resources: Handouts

Class Website Scholar (scholar.vt.edu). Check the course website daily for course announcements, updates, and reminders.

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

1. Understand the fundamental principles involved in the management of soil and water resources;.
2. Describe measurement techniques for precipitation, runoff, and soil erosion;
3. Estimate runoff and soil erosion;.
4. Describe erosion control management practices and structures;.
5. Describe nonpoint source pollutants and related management practices; and,
6. Evaluate environmental and soil factors which influence irrigation system design and management.

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

Homework assignments and quizzes	50%
Class Attendance	5%
First Test	15%
Second Test	15%
Final Exam	15%

Course Policies:

1. 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. No laptops, cell phones, or other electronic devices may be in use during the class period, since they are distracting to the instructor and other students. Individuals whose actions create a distraction or disturb other students will be asked to cease the disrupting activity or leave the classroom.
2. All **homework assignments** are due at the beginning of class, one week after they are assigned, unless otherwise specified by the instructor. **Late work** will be assessed a penalty of 10% per class day that it is late. All homework must be neat, complete, and prepared in a professional manner.
3. Unannounced **quizzes (on-line or in-class)** are a distinct possibility at any time. They will be used to assess how well lecture material is being assimilated. **Tests** will be announced and indicated on the course syllabus. The **final exam** will contain some comprehensive questions. There will be no makeup tests or exams. Exceptions will be made only in cases of hospitalization or other officially sanctioned absence from campus. If you must be absent due to an **ethnic or religious holiday**, please let me know by January 25, so I can make alternate accommodations for you. To avoid cheating during exams, students must bring their cell phones with them to exams, turn them off, and place them on their desks in clear sight.
4. Class **attendance** and participation are essential for success in this class. Please be prepared for each class by **reading and studying the assigned material prior to coming to class**. Students are expected to be at lecture; attendance is required and will be a part of your grade. An attendance sheet will be circulated at each lecture class. (Note that it is an Honor Code violation to sign another student's name to the attendance roster.)
 - a. Final individual grades will be curved upward for good class attendance and curved downward for poor attendance; 5% of your grade is based on attendance. You will receive the full 5 points plus a bonus point for a total of 6 points if you have no unexcused absences; you will receive the full 5 points for only one unexcused absence; one-half point will be deducted from the 5 points for the second unexcused absence and for each unexcused absence thereafter. Thus, 11 unexcused absences mean you receive none of the 5% for attendance. (Note that, excluding the two test periods, there are 25 lecture classes during the semester.) You will continue to lose one-half point from your final grade for the twelfth unexcused absence and all unexcused absences thereafter.
 - b. A university-approved excuse is required to make up missed work without penalty.
 - c. For any medical absence, an excuse must be obtained from Schiffert Health Center or from a medical doctor.
 - d. For personal/family emergencies, an excuse must be obtained from Residence Life in 107 East Eggleston for on-campus students or Student Life & Advocacy, Henderson Hall, for off-campus students.
 - e. For university sanctioned/approved events/activities, you must have an excuse (an email will suffice) from the faculty advisor in charge of the event/activity.
 - f. Excused absences still require that missed graded work be completed in a timely fashion as agreed upon by the student and the instructor.

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, 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 Honor Code will be strictly enforced in this course. All assignments submitted shall be considered graded work, unless otherwise noted. All aspects of your coursework are covered by the Honor System. Any suspected violations of the Honor Code will be promptly reported to the Honor System (see <http://www.honorsystem.vt.edu/>). The following is the Honor Code written verbatim from the VT Honor System Constitution:

The Honor Code is the University policy that expressly forbids the following academic violations:

1. Cheating -- Cheating includes the actual giving or receiving of any unauthorized aid or assistance or the actual giving or receiving of any unfair advantage on any form of academic work, or attempts thereof.
2. Plagiarism -- Plagiarism includes the copying of the language, structure, ideas and/or thoughts of another and passing off same as one's own, original work, or attempts thereof.
3. Falsification -- Falsification includes the statement of any untruth, either verbally or in writing, with respect to any circumstances relevant to one's academic work, or attempts thereof. Such acts include, but are not limited to, the forgery of official signatures, tampering with official records, fraudulently adding or deleting information on academic documents such as add/drop requests, or fraudulently changing an examination or other academic work after the testing period or due date of the assignment.

While group discussion of homework is encouraged to facilitate cooperative learning, each student is expected to complete each assignment him/herself and to turn in his/her own work. Copying of another student's work (currently or previously enrolled students) is not allowed. Sharing the work for an assignment (e.g. each student takes one problem or each student completes part of a problem) is forbidden. Copying (either direct cut and paste or slight rewording) of written material, such as from the internet or another student's work, is strictly forbidden. All exams should be solely and completely the work of the individual student. **Violations of the Honor Code will be turned over to the Honor Court.**

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 2384 Spring Semester 2011 - Course Schedule

Lecture	Date	Topic	Reading/Assignment
1	1/18	Managing Water Use; Hydrologic Cycle	Ch. 1 ¹ , Ch. 2 ¹ , Appendix E ¹
2	1/20	Soils, Classification and Properties	Ch. 3 ¹
3	1/25	Soils, Classification and Properties	Ch. 3 ¹
4	1/27	Land Measurements (Slope, Elevation, Leveling); Topographic Contours & Maps	Ch. 4 ¹
5	2/1	Land Measurements (Slope, Elevation, Leveling); Topographic Contours & Maps	Ch. 4 ¹
6	2/3	Precipitation	Ch. 5 ¹ (pp. 66-69), **
7	2/8	Measuring Precipitation	**
8	2/10	Infiltration	**
9	2/15	Evaporation and Transpiration (ET)	**
10	2/17	Hydrology - Runoff Processes	Ch. 5 ¹
11	2/22	Estimating Runoff	Ch. 5 ¹ , **
12	2/24	Estimating Runoff (continued)	Ch. 5 ¹ , Ch. 6 ¹ , **
13	3/1	Surface Drainage	Ch. 7 ¹
T1	3/3	FIRST TEST	<i>Covers Thru Runoff Processes</i>
14	3/15	Soil Erosion	Ch. 9 ¹
15	3/17	Universal Soil Loss Equation (RUSLE)	Ch. 9 ¹
16	3/22	RUSLE; other Erosion Estimation Methods	Ch. 9 ¹ , **
17	3/24	Erosion Control Practices	**
18	3/29	Erosion Control Practices	**
19	3/31	Open Channel Hydraulics	Ch. 8 ¹
20	4/5	Open Channel Hydraulics	Ch. 8 ¹
21	4/7	Vegetated Waterways	** , Append B ¹
22	4/12	Impoundments	Ch. 11 ¹ , Ch. 12 ¹
T2	4/14	SECOND TEST	<i>Covers Runoff Proc. - Waterways</i>
23	4/19	Pond Design; Stormwater Detention Structures	Ch. 11 ¹ , Ch. 12 ¹
24	4/21	Sediment Retention Structures	Basin-Ch. 13 ¹ ; Traps-Ch. 14 ¹
25	4/26	Irrigation Principles	Ch. 15 ¹ , Append A ¹ , B ¹ & C ¹
26	4/28	Nonpoint Source Pollution	**
27	5/3	Watershed Management and Planning	**
FE	5/7	EXAM, 7:45 a.m. – 9:45 a.m., Saturday	<i>Focus on material beginning with Impoundments/Ponds</i>

¹ Jarrett, A.R. 2008. Effectively Managing Water. Agricultural and Biological Engineering, Pennsylvania State University, 1st Edition.

** Special Lectures – Handouts will be distributed in class or put on Scholar.