Soil and Water Conservation Engineering
ESP 260
Spring 2017

Instructor: Christopher Pickles, 207-318-2020
Email: christopher.pickles@maine.edu
Office Hours: TBD
Lectures: M 4:10-6:40pm, 109 Bailey Hall
Text: Documents for class will be available as downloads from Blackboard. Or you can provide me with a flash drive and I will copy them for you.

Introduction: The central issue of this course is conservation - the utilization, improvement and protection of the two most basic resources on earth– soil and water. The course will focus on applying scientific and engineering principles to the primary problem areas of soil erosion and flood control. We will look at both natural phenomenon and human influence. We will design practical solutions to remediate these problems, which will be evaluated from technical, economic and societal viewpoints. Practical real life examples will be used as much as possible. The course will work through sample problems and exercises both in groups and individually. We will also learn some basic field skills in preparation for collecting data for our site design plans.

Course objectives:
By the end of this course students should be able to:

1) Calculate runoff by evaluating a watershed
2) Understand culvert and open channel hydraulics
3) Understand the basics of soil compaction, soil loss, and soil properties
4) Determine Best Management Practice to use for soil stabilization
5) Conduct a baseline topographic survey, and use survey skills for basic site assessment and site layout.
6) Produce an erosion and sediment control plan or a storm water management plan that meet Maine and EPA requirements

Lecture Schedule (subject to change)

Date		**Topic**	**Homework**
Jan	23	Intro to conservation, Pretest and Demo 1	Read ME Stormwater Manual and provide 1 page review.
Jan	30	Watershed delineation, RCN, soils	Review TR-55 and RCN problems
Feb	6	More on watersheds	Review ME_DOT CH12 & Rational Method Problems
	13	Hydraulics – Culvert Design and Climate Change Impacts – Demo 2	Review ME_DOT CH12, Hydraulics Problems & Culvert Design

	20	*No class – winter break*	
	27	Hydraulics – Open Channel Flow and Sustainable Design Concepts	Review FHA Design Manuals & Open Channel Flow Problem
Mar	6	Soils Basics – Groundwater, Wells, Polution, Construction Dewater, Stormwater Management Plans	Soils Homework 1 and SMP Readings and Case Study Review (Due after Exam 1)
	13	**EXAM #1 -** Soil Loss Wind Erosion – Demo 3	
	20	Soil Properties, Erosion, Sedimentation, Construction	Soils Homework 2 Readings
	27	*No class – spring break*	
April	3	BMP, Erosion and Sedimentation Control Plans, Geotextiles	BMP problem set Readings
	10	Topographic Survey and Sustainable Design Field Trip	Reduce Survey Data and Notes – Draw Topo Map
	17	Structural BMP's Survey	Readings 1 Page
	24	**EXAM #2** Term Projects	
May	1	Term Projects	

Grading:

Exams	40%
Homework	30%
Participation	10%
ESC plan/SWM plan	20%

- No late assignments will be accepted.

General:

- There will be 6 homework sets along with work sessions during class.
- There will be two in-class exams that will cover material from lectures, reference material and the problem sets.
- The exams will consist of problem solving, short answer and short essay. There will be no make-up exams without prior approval.
- There will be no final exam, instead there is a final project - an erosion and sediment control plan or a storm water management plan – will be due at last class.

- First drafts of each of these projects, and the topo map will be due earlier in the semester. Any drafts received after the due dates will result in a ½ letter grade/day deduction from your final project grade.
- This project will require significant time in addition to the scheduled in-class time, so please plan accordingly.

Attendance: Attendance is expected. We will have some outside sessions pending on weather. Class may include problem-solving sessions. Remember that participation is 10% of your grade.

Integrity and Civics: In accordance with USM policy (and basic decency), student are expected to do their own work and not appropriate or plagiarize the works of others. Courtesy and proper behavior is expected in and outside the classroom at all times. Be sure to turn off cell phones, unless you need it on vibrate because of a family situation, and please keep your cell phone in your bag during class and lab. If you use a laptop for note taking, do not check mail or surf the web during class.

ADA: We are committed to providing course adaptations or accommodations as needed. Since we all learn in different ways, please do not hesitate to let me know your needs. I will do our best to accommodate. If you need course adaptations because of a disability, please contact the Office of Academic Support for Students with Disabilities located in Luther Bonney 242. Phone number 780-4706; TTY 7804395.