AGRICULTURAL NONPOINT SOURCE POLLUTION
BSE 5404 (Fall 2018)

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Course Information

Time/Location: Online course/weekly schedule
Course Teaching Assistant (TA):
Course website(s):
Canvas Site for AgNPS 2018
VT-CALS Online MS (OMALS) Program General Information

Prerequisites: Successful students should bring to this course a general knowledge of the physical, chemical, biological, and soil factors that affect the environment. They should also possess an adequate background in environmental regulations.

Course Description: Assessment and management of agricultural nonpoint source (NPS) pollution. Precipitation, runoff, erosion, pollutant fate and transport, and best management practices. Application of Total Maximum Daily Loads (TMDLs) and water-quality standards. Pre: Background in physical, chemical, biological, and soil factors affecting the environment and in environmental regulations. (3H, 3C)

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

A. Identify, assess, and apply regulatory requirements and policy (including the Clean Water Act and Total Maximum Daily Loads (TMDLs)) at the local, state, and federal level within the context of NPS pollution.
B. Interpret water quality standards, use attainability analysis, and apply them to the TMDL process.
C. Recognize, analyze, and evaluate the major chemical, physical, and biological processes affecting the rate and transport of nutrients, sediments, pesticides, and other pollutants to surface and groundwater.
D. Estimate NPS pollution loads and effectiveness of BMPs using common practices and simple modeling techniques.
E. Identify and discuss the benefits and limitations of conventionally used best management practices (BMPs) for NPS pollution control.
F. Assess, develop, and discuss solutions to NPS problems within a given regulatory framework, including developing a watershed management plan.
G. Review, assess, and summarize peer-reviewed articles related to NPS pollution.
H. Describe and discuss NPS-related topics through online forum.

Texts/Materials: No required text. Materials will be provided through the Canvas website.

Assignments and Grading:

Assignment	**Percent of Grade**
Annotated Reviews	15%
Homework Sets	30%
Midterm Exam	20%
Final Exam	20%
NPS Information Sheet	10%
Class Participation (See "Communication" & "Participation" below)	5%

Grading Scale:

Letter	Points	Letter	Points	Letter	Points	Letter	Points	Letter	Points
A	93-100	B+	87-89	C+	77-79	D+	67-69	F	<60
A-	90-92	B	83-86	C	73-76	D	63-66		
		B-	80-82	C-	70-72	D-	60-62		

Assignment Descriptions:

a) Reading Assignments: Readings will be assigned to reinforce the material covered in the online lectures. These readings will be from online sources, and various reports and journal articles. All readings should be done before the Monday of the week following when they are assigned.

b) Quizzes: There will be short quizzes for you to do online from time to time (TBD). These will NOT be included in your final grade, but will ensure that you keep up with the readings and lecture notes. The quizzes will be very brief (usually less than 10 min) and should be done before the Monday of the following week.

c) Annotated Reviews and Project: Four **ANNOTATED REVIEWS** of professional journal articles will be submitted throughout the semester. An annotated review is typically a 1-2 page summary and analysis of an article. Guidelines and examples will be available on our class website (under Assignments in Canvas). The articles should be recent (since 2000 if possible) and can be on any topic related to NPS pollution. Throughout the semester, your selected articles should be related in some way to a specific focus area in NPS pollution of particular interest to the student. Toward the end of the semester, you will be the "expert" amongst us concerning this focus area, and will develop a **NPS INFORMATION SHEET** on your topic area, which will be "published" as a resource to be linked to from our course web site. This information sheet will utilize the four annotated reviews assigned in class and at least 2 additional articles (6 total).

d) Homework Sets: There will be at least 4 homework sets throughout the semester. Homework must be prepared and presented in a professional manner. Due dates will be given on each assignment. Grades on late homework will be reduced by 20% of the total available points for that assignment each day (24-hour period) that the assignment is late. All assignments must be submitted to complete the course.

e) Exams: There will be a midterm exam and a final exam. These exams will be online and be opened for a specified time period. The final exam will be cumulative.

Technology: A working and reliable computer and Internet access is required as well as access to Canvas. High-speed access is not required but is ideal to view online presentations and download files.

Course Access, Communication, and Participation

Using Canvas: To access the course website, go to the Canvas Course Site and login if you haven't already; BSE5404 should be listed on your course Dashboard or under "Courses" in the left hand menu. If you have trouble with the Canvas site or have other technical issues, the following resources can help resolve your problems:
Canvas: Getting Started for Students
Canvas Student Guide
Canvas support by phone: (844)701-1942
Virginia Tech 4Help website
Virginia Tech 4Help by phone: (540) 231-HELP (231-4357)

Communication: This course will have a discussion FORUM. The forum serves two main purposes: 1) To provide a platform for the ENTIRE class to discuss current events related to NPS pollution (some posted by the instructor, but students are encouraged to post topics/articles/etc. as well); and 2) To provide a place for students to ask questions and discuss course content, homework, etc. with input from the instructor. Students can also use the Message tool to ask questions or promote discussion, but messages should be sent to ALL. Please ONLY send an email to the instructor for personal business only.

IMPORTANT - ALL students, even "local" students, must treat this as a totally online course and should use the FORUM; it isn't fair to treat "local" students differently from "remote" students in the class. We might use the Chat Room from time to time as well.

Participation: This is a graduate course and you are expected to participate and be involved in the FORUM and Chat Room (if we use it). The papers or online reading materials should be read before the following class. **Since this is an online course, we expect you to check your email & course website frequently (daily if possible).**

Special Needs: If you need adaptations or accommodations because of a disability (learning disability, attention deficit disorder, psychological, physical, etc.), if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please meet with me as soon as possible.

Honor Code

"*The Virginia Tech Honor code will be strictly enforced in this course. All assignments submitted shall be considered graded work, unless otherwise noted. All aspects of your course work are covered by the honor system. Any suspected violations of the honor code will be promptly reported to the honor system. Honesty in your academic work will develop into professional integrity. The faculty and students of Virginia Tech will not tolerate any form of academic dishonesty."*

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:

- Do all written or electronic assignments independently and without assistance unless otherwise specified.
- 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.

For the full Honor Code constitution for graduate students, please see the Graduate Honor System Constitution.