

## Water Quality Strategy

NRES 475/875 - Section 001

3 Credits

Cross-listed as AGRO 475/875, CIVE 475/875, CRPL 475/875, GEOL 475/875, MSYM 475/875, POLS 475/875, SOCI 475/875, SOIL 475, WATS 475/875

### Time and Place

Wednesdays, 4:30-7:30 PM, 228 Hardin Hall  
Jan 15-Apr 30, 2014

### Course description

Students will work together to evaluate a current and pressing water quality issue facing society. They will use a comprehensive approach to practical selection, analysis and defense of planning strategies to protect water quality from nonpoint source contamination. The course will provide an introduction to the use of methods to analyze the impact of strategies on whole systems and subsystems; for selecting strategies; and for evaluating present strategies.

**Prereqs:** Graduate, senior undergraduate standing, or permission. Capstone course.

### Course goals and objectives

The overall goal of the course is to provide experience in group decision making for evaluating, communicating and recommending appropriate planning strategies for managing nonpoint source contamination of water resources. Students will use individual expertise together with varied information sources to formulate practical and realistic approaches to protecting water quality and ensure sustainable beneficial use. Students will learn to serve on community water or natural resource planning committees by preparing a single comprehensive water quality strategy report. The report includes an in-depth overview of the extent and causes of the problem, an assessment of the potential solutions, an evaluation of stakeholder acceptance of alternatives, and a plan of action based on a weighted ranking of the alternatives and decision tree models.

### Student Learning Outcomes

After completing the course, students will understand and be able to:

- Evaluate planning strategies for managing nonpoint source contamination of water resources including the extent, cause, and justification for public concern.
- Assess policy drivers and associated current and pending rules and regulations associated with the problem
- Communicate planning strategies for managing nonpoint source contamination of water resources
- Evaluate stakeholder understanding and interest in alternative strategies
- Recommend appropriate planning strategies for managing nonpoint source contamination of water resources and prioritize alternatives to address the problem
- Recommended action plans on specific alternatives to reduce or eliminate the problem
- Learn to serve on community water or natural resource planning committees.

The main components of the strategy evaluation include: (1) an evaluation of the extent, cause, and justification for concern; (2) an assessment of policy drivers and associated current and pending rules and regulations; (3) an evaluation of stakeholder understanding and interest in the strategy; (4) an evaluation of alternatives to address the problem; and (5) recommended action plans on specific alternatives to reduce or eliminate the problem. The overall objective is to create a professional and balanced report listing potential actions while considering the interests and trade-offs for all stakeholder groups.



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## **Instructor Role: Facilitator and Evaluator**

As instructor, I will present a range of current water quality issues and help the group determine the most pressing topic issue to address during the course. During the course I will keep discussions on course in order to meet weekly schedules and milestones.

## **Required texts and materials**

No required text and all supplemental materials will be provided through Blackboard. Regular attendance to class meetings may be supplemented by on-line discussions.

## **Description of course assignments and projects**

In a group, you will evaluate, communicate and recommend an appropriate planning strategy for managing a nonpoint source contamination of water resources. You will use individual expertise together with varied information sources to formulate practical and realistic approaches to protecting water quality and ensure sustainable beneficial use. You will prepare a comprehensive water quality strategy report. The report will include an in-depth overview of the extent and causes of the problem, an assessment of the potential solutions, an evaluation of stakeholder acceptance of alternatives, and a plan of action based on a weighted ranking of the alternatives and decision tree models.

The class will be divided into different stakeholder committees, and within each committee there will be four assigned group duties or responsibilities: 1) Virtual town-meeting assignment 2) Oral presentation 3) Executive summary preparation and 4) committee report preparation. Each student within the committee will have a specific well-defined role in the overall process.

## **Grading**

***Class participation (10%)*** Everyone starts at a 5% for participating in the course.

**You may increase this percentage during the course by:**

1. Becoming more active, making effective comments raising the overall level of discussion and set examples for others.
2. Asking thoughtful questions that will enhance discussion and engage peers.
3. Listening carefully to, supporting, and engaging your peers in discussion. This will essentially improve others' learning experience.
4. Keep discussions focused on the issue and discussion solutions

**You may decrease this percentage by:**

1. Not attending class regularly.
2. Dominating class discussions, thereby restricting others' participation.
3. Disrupting others' opportunity to listen and/or participate.
4. Making negative, offensive, and/or disrespectful comments during discussions.
5. Personal use of electronic devices during class.

## ***Writing Assignments (15%)***

During the second week, a water quality issue or topic will be selected for the semester. The class will then be divided into 4 or 5 committees, and each will elect a committee "chair" and "secretary". The position of "secretary" will rotate amount the group during the remaining four weeks of class. Each week the secretary will record minutes to be reviewed at the subsequent class meeting, corrected and approved, then turned in for a grade. Writing assignments are due by 5:00 PM Friday following the class meeting where the minutes are voted on.

## ***On-line Discussions (15%)***

Each week one of the committees will provide an unresolved topic as a thread for on-line discussion using Blackboard discussion groups. On-line discussion will follow guidelines for "netiquette" (see below) and provide a forum or virtual "town-meeting" for continuing to resolve an issue. The assigned committee will be graded on how much discussion is generated on the topic, and responders will be graded by their level of engagement.

## ***Group Report (50%)***

The final product of the class will be a group report consisting of chapters prepared by each student committee, and a summary chapter listing potential actions while considering the interests and trade-offs for all stakeholder groups. Each student committee will evaluate the topic from a different stakeholder perspective. Stakeholder areas will vary and be identified after the topic or issue area has been selected. Generally stakeholder committees may include land owners, development interests, local/environmental groups, government entities, and concerned citizens. Speakers will be invited

to present a water quality issue/topic during the first half of the class. Each committee will provide a group report that details the information presented and collected during the semester which will be due during the last week of class. The appendix of the report will include committee minutes and copies of presentations.

The report will include 1) a complete and unbiased evaluation of the extent, cause, and justification for a given water quality issue or concern; 2) assessment of policy drivers including current and pending rules and regulations; 3) an evaluation of alternatives to address the problem; and 4) recommended action plans on specific alternatives to reduce or eliminate the problem. The overall objective is to create a professional and balanced report listing potential actions while considering the interests and trade-offs for all stakeholder groups.

### **Final Group Presentation (10%)**

During the last half of the semester, each group will provide a 20 minute oral presentation detailing the information they have collected for their committee report. The class will discuss the presentation during the remaining part of the class and all in attendance will complete an evaluation form. Presentation grade for the committee will be based on an average of the evaluations.

### **Grading criteria**

<b>Criteria</b>	<b>Points</b>	<b>Percent</b>
Class Participation	100	10.0%
Writing Assignments (Individual and Group)	150	15.0%
On-Line Discussions (Based on Participation)	150	15.0%
Group Report	500	50.0%
Final Group Presentation	100	10.0%
<b>Total:</b>	<b>1000</b>	<b>100.0%</b>

A+	=	97.0-100%
A	=	93.0-96.9
A-	=	90.0-92.9
B+	=	87.0-89.9
B	=	83.0-86.9
B-	=	80.0-82.9
C+	=	77.0-79.9
C	=	73.0-76.9
C-	=	70.0-72.9
D+	=	67.0-69.9
D	=	63.0-66.9
D-	=	60.0-62.9

### **Course organization and procedures**

The first 2 weeks of the course will be devoted to orienting the participants to the course format and an introduction to water quality concepts and current issues. The remainder of the course will be used for developing group reports and presentations focused on individual stakeholder perspectives and final merging of these reports into a prioritized synthesis of the alternatives.

### **Course schedule**

Course Week	Week of	Class Date	Topic/Activity	Assignment (materials provided on Blackboard)	Due In Class on this date
1	January 13, 2014	January 15, 2014	Overview of course and expectations. Lecture: Introduction to water quality, conflict and solutions. Lecture: Public Engagement and Group Processes	Read: <i>Introduction to Water Quality</i> (Meybeck and Helmer, 1996) and Water Quality United Nations Policy Brief.	Identify a publication on a water quality topic/issue that can help contribute to a foundation of scientific knowledge on an issue.
2	January 20, 2014	January 22, 2014	Lecture: Current Nonpoint source water quality issues. Generate topic list in class. Stakeholder committees identified and discuss topics.	Class will vote on topic/issue to be covered during the semester. Committees discuss stakeholder positions, major issues.	All students: Turn in half-page written summary of water quality publication.

3	January 27, 2014	January 29, 2014	Lecture: Conflict Resolution and Group Decision Making Stakeholder Committee Meetings	Stakeholder Committees identify stakeholder positions and interests and major issues. Draft List of Possible Solutions and assign one to each committee member for research.	Group Member 2 Prepares Minutes/Summary – turn in for group credit
4	February 3, 2014	February 5, 2014	Stakeholder Committee meetings	Each committee member presents analysis of solution to committee members for feedback and suggested revisions	All students: Research the list of possible solutions and share with committee to help narrow down list for more research and evaluation. Hand in short list. Group Member 3 prepares Minutes/Summary – turn in for group credit
5	February 10, 2014	February 12, 2014	Stakeholder Committee meetings	Inter-group stakeholder meetings begin to get feedback from other groups. Group incorporates and revises draft committee report	All students: 1-2 pages written report/summary of assigned solution research Group Member 4 prepares Minutes/Summary
6	February 17, 2014	February 19, 2014	Guest Speaker: Graduate studies presentation on “Effectively communicating science”	Inter-group stakeholder meetings continue to get feedback from other groups. Group incorporates and revises draft committee report	All students: 1 page written report/summary of assigned solution research (revised) Group Member 2 Prepares Minutes/Summary Group 2 Digital Town Hall Turn in evaluation/summary of each presentation
7	February 24, 2014	February 26, 2014	Stakeholder Committee Meeting or Presentation Workshops	Inter-group stakeholder meetings continue to get feedback from other groups. Group discusses final revisions needed for draft committee report	Group Member 3 Prepares Minutes/Summary Group 3 Digital Town Hall
8	March 3, 2014	March 5, 2014	Stakeholder Committee Meeting or Presentation Workshops	Each committee member presents revised solutions to committee members. Group incorporates and revises draft committee report.	Group Member 4 Prepares Minutes/Summary Group 4 Digital Town Hall
9	March 10, 2014	March 12, 2014	Stakeholder Committee Presentations		All students: written evaluation of each presentation Groups 1 and 3- turn in Powerpoint Outline
10	March 17, 2014	March 19, 2014	Finish Stakeholder Committee Presentations Integration Plan for After Break	Final Committee Reports Due In class	All students: written evaluation of each presentation Groups 2 and 4- turn in Powerpoint Outline
11	March 24, 2014	No Class – Spring Break			
12	March 31, 2014	April 2, 2014	Begin Integration of Solutions. Class reformed into 5 executive committees	Integration committees examine all committee reports Begin draft proposal for integration of stakeholder reports	(Need to have new group member numbers for new groups) Group Member 2: Prepares Minutes/Summary

13	April 7, 2014	April 9, 2014	Integration Committees meet and prepare report to integrate/prioritize solutions	Integration committees examine all committee reports Begin draft proposal for integration of stakeholder reports	Group Member 3: Prepares Minutes/Summary
14	April 14, 2014	April 16, 2014	Integration Committee Presentations	Class vote on most promising integration of solutions	All students: Evaluation of presentations
15	April 21, 2014	April 23, 2014	Final Report Due from winning Exec Group	Discuss process and final product	All students from non-winning exec. Groups provide critical review of the final report
16	April 28, 2014	April 30, 2014	Critical Review of Final Report due from non-winning students Class discussion	Evaluation of process and final outcome	All student: Class Evaluation and ACE On-line Survey

### Expectations

Minimum requirements for postings and interactions: Every student will be expected to provide verbal or written input during class and through the discussion board every week.

Quantity/Quality of work: Quality is measured by relevance and how concisely the information is presented in the summaries, reviews and reports. Except for the group stakeholder reports and final synthesis, all assignments are generally less than 1 page in length.

Specifications for writing assignments: Outline or format will be provided for all assignments.

### Course resources

All general course resources will be provided via Blackboard. Specific review or journal articles must be obtained through the library.

### Library reference materials

No additional reference materials will be needed.

### Course policies

#### Attendance

This is a graduate/upper-level undergraduate course, and I expect you to come to class prepared to discuss the readings and actively participate. More than one unexcused absence is considered excessive and I have the discretion to require an additional written assignment from you if any absence is not excused. Excused absences will only be considered if contacted either in advance or within a reasonable amount of time after the class (depending on the emergency). If a student misses three classes, a meeting with the instructor should be arranged to discuss the situation. If the absences are unexcused, it could result in a failing grade in the class.

#### Late assignments

Late assignments will not be accepted. All deadlines for projects, postings, and the final paper are specified in the syllabus. Students cannot request extra credit opportunities for missed assignments.

#### Plagiarism/Cheating

Academic honesty is the foundation of intellectual inquiry and academic pursuit. If you use the ideas of someone else or directly quote any part of a text, it needs to be cited. All students in this class will be held and are expected to hold each other to standards set forth by the University of Nebraska – Lincoln Student Code of Conduct. If you have any questions about this, please talk to me. Please visit the following website to review the policy: <http://stuafs.unl.edu/ja/code/three.shtml>

#### Personal technology

Because the use of personal technology is disruptive to students seated near you, don't use any portable electronic device (e.g. laptop, cell phone, Smartphone, Blackberry, etc.) during class unless the device is used strictly for class purposes. It's also important to note that this class is highly interactive, and your participation is important to its success. Please turn off your cell phones prior to the class. It is disrespectful to me and your classmates to answer your phone or to let it ring during class.

#### Students with disabilities

Students with disabilities are encouraged to contact Christy Horn for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course

requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

### **Technical or administrative help**

#### **Technical requisites**

Minimum hardware requirements:

Assignments, presentations and supplementary materials will be provided through Blackboard. The latest operating system and browser requirements are available at [http://blackboard.force.com/btbb\\_publichome](http://blackboard.force.com/btbb_publichome).

Presentations and writing assignments will require the use of Microsoft Office software, including MS Word, Powerpoint and Excel.