

**BSEN/CIVE 455/855**  
**Nonpoint Source Pollution Control Engineering**  
Fall Semester 2021  
Monday, Wednesday, Friday, 1:00-1:50 p.m.  
Room 149 Chase Hall

Characterization and assessment of nonpoint source pollutants; transport mechanisms and remediation technologies; design methodologies, and case studies.  
Prerequisites: BSEN/CIVE 326 or BSEN 355, and AGEN/BSEN 350 or CIVE 352 or permission.

**Textbook:** No formal textbook will be used this semester. Class handouts and other reference material will be provided or made available on Canvas. Class notes will be an important study resource.

**Course Website:** [canvas.unl.edu](https://canvas.unl.edu)

**Instructors:** Dr. Tom Franti, Ph.D., P.E.  
242 Chase Hall  
email: [tfranti@unl.edu](mailto:tfranti@unl.edu)  
Office hours: by appointment via email

**Learning Objectives:**

1. Recognize the social, legal, economic and watershed contexts of nonpoint source (NPS) pollution, and explain its control and mitigation;
2. Be able to use underlying principles of environmental and ecological engineering, and hydrology to examine, compare, and select components and processes involved in NPS pollution control;
3. Operate and interpret NPS water quality models to examine watershed performance and Total Maximum Daily Load development;
4. Formulate, evaluate and communicate best management practices for NPS pollution control.

**Knowledge Prerequisites:**

1. Spreadsheet, graphics, word processing, and computer-based modeling skills.
2. Principles of environmental and ecological engineering.
3. Introductory hydrology.

**Course Prerequisites:**

Prerequisites: BSEN/CIVE 326 or BSEN 355, and AGEN/BSEN 350 or CIVE 352 (3 cr Lec 3), or permission

**Topics:**

1. Characterization of nonpoint sources of pollution
2. Water quality standards, regulatory approaches, ethics and social attitudes issues
3. Entry and fate of pollutants in the hydrologic cycle
4. Transport mechanisms, loading functions, and equations for contaminated sediment and water
5. Design and management methodologies including total maximum daily loads (TMDLs); best management practices (BMPs); monitoring systems
6. Modeling, in particular RUSLE and SWAT
7. Design examples include sediment detention facilities, storm water runoff quality control devices.

### Short Presentations:

These are team oral presentations or videos, and must be an analysis of an NPS topic of current interest. A suggested list of topics will be available. Each presentation/video must be accompanied by a summary of no more than 2 pages in length, typed (double spaced). Complete and correct citations are expected. Graduate students are expected to submit two presentations/videos and summaries.

### Modeling Project:

The project will be a several-week team effort (2-3 persons per team) dealing with an environmental assessment and mitigation design of an NPS problem using modeling as the primary tool. A preliminary report must be submitted to the instructor approximately 3-4 weeks before the final report is due. The project due date is TBD, but will be no later than the end of the last week of classes.

### Field Trips:

Two or three field trips will be planned during the semester. Depending on student's schedules these could be during regular class time, or other times (e.g. late afternoon, weekends). Students may be asked to provide their own transportation to field sites (in and near Lincoln), or vans may be used. Appropriate dress for outside tours and tour permit information from each student will be required for attendance. Tours will follow all UNL Covid-19 protocols in effect on the date of the tour.

### BSEN/CIVE 855 Graduate Student Expectations

Graduate students enrolled in the BSEN/CIVE 855 will be expected to perform at a higher level in all aspects of the class and complete additional assignments related to research and reporting on NPS issues and topics. This additional work will be equivalent to 10% of their grade, prorated over the total points in the class (see below).

### Exam Scheduling:

The closed book portion of exams will be conducted through the Digital Learning Center Exam Commons (DLC). The DLC has two locations, one is in the Adele Coryell Hall Learning Commons in Love Library North and the other is in the Dinsdale Family Learning Commons on East Campus. All exam times must be pre-scheduled by students in advance. Schedule exams at: <https://dlc-reserve.unl.edu>. DLC introduction video available here: <https://its.unl.edu/dlc/>. Dates of exams may change from those indicated on the course outline. Scheduling conflicts because of changes will be resolved per the Missed Exam or Quiz policy below, or in consultation with the instructor.

The final exam may include an on-line portion, for which the date, time, and location could change from the UNL published final exam schedule (<https://registrar.unl.edu/academic-calendar/final-exam/#tab2>), based on exam time available at the Digital Learning Center. **The final exam is currently scheduled Tuesday-Wednesday, Dec. 14-15. The mid-term exam is scheduled for Thursday-Friday, October 28-29, and will include on-line and take home portions.**

### Grading:

Final grades are based on percent of total points earned weighted as shown here:

		Due Dates <sup>1</sup>
Project <sup>2</sup>	30%	Weeks TBD
Exams, Quizzes, Surveys <sup>3</sup>	30%	Throughout
Homework	30%	Throughout
Presentations and Short Papers	10%	Throughout
<i>Graduate Student Research/Reporting</i>	additional 10% (prorated)	Throughout

<sup>1</sup>Exact dates to be mutually decided

<sup>2</sup>Preliminary Report will be 10% of the total points.

<sup>3</sup>UNL Final Exam time is scheduled from 1:00 to 3:00 p.m., Tuesday, Dec. 14.

The following scale will be used to determine the final letter grade:

A+	98 - 100%	B+	88 - 89%	C+	78 - 79%	D+	68 - 69%
A	92 - 97%	B	82 - 87%	C	72 - 77%	D	62 - 67%
A-	90 - 91%	B -	80 - 81%	C -	70 - 71%	D -	60 - 61%
						F	0 - 59%

#### **Late Assignments and Missed Exam or Quiz:**

Assignments turned in past due will be reduced in grade as follows:

If submitted late, but within 24 hours of when due the maximum score will be reduced by 25% from full points.

If submitted between 24 and 48 hours of when due the maximum score will be reduced by 50% from full points.

If submitted more than 48 hours of when due the homework will be scored at zero points.

If negotiated beforehand for extenuating medical, personal, or professional circumstances, homework may be submitted late with no points penalty.

Make-up exams or quizzes may be allowed for extenuating medical, personal, or professional circumstance, and if the instructor is informed of expected absences prior to the date of the exam or quiz. Make-up exams or quizzes are at the sole discretion of the instructor, and the instructor reserves the right to create an alternate exam or examination method for make-up exams and quizzes. Quizzes and exams missed will be scored zero points.

#### **Academic Honesty:**

Students are expected to adhere to guidelines concerning academic dishonesty outlined in Section 4.2 of the University's Student Code of Conduct (<http://stuafs.unl.edu/ja/code/>). The BSE Department process for grade and academic dishonesty appeals can be found at <http://bse.unl.edu/academicadvising-index>. Students are encouraged to contact the instructor for clarification of these guidelines if they have questions or concerns.

#### **Covid-19 Protocols**

All faculty, staff, and students on campus are expected to follow all campus policies and procedures related to Covid-19 which can be found at <https://covid19.unl.edu/>. Please visit this website which includes information about testing, vaccinations, and use of the Safer Community App for access to campus buildings and activities.

Student participation in tour experiences that take place outside of our classroom will entail the use of the Safer Community app. <https://covid19.unl.edu/safer-community-app>. You will need to have "Access Granted" status on your app in order to travel to and participate in such experiences. Experiences in a laboratory setting or close association during tours will require mask wearing.

#### **Students with Disabilities:**

Students with disabilities are encouraged to contact the instructor 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.

#### **Emergency Response:**

**Fire Alarm (or other evacuation):** In the event of a fire alarm: Gather belongings (Purse, keys, cellphone, N-Card, etc.) and use the nearest exit to leave the building. Do not use the elevators. After exiting notify emergency personnel of the location of persons unable to exit the building. Do not return to building unless told to do so by emergency personnel.

**Tornado Warning:** When sirens sound, move to the lowest interior area of building or designated shelter. Stay away from windows and stay near an inside wall when possible.

### **Active Shooter**

**Evacuate:** if there is a safe escape path, leave belongings behind, keep hands visible and follow police officer instructions.

**Hide out:** If evacuation is impossible secure yourself in your space by turning out lights, closing blinds and barricading doors if possible.

**Take action:** As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter.

**UNL Alert:** Notifications about serious incidents on campus are sent via text message, email, unl.edu website, and social media. For more information go to: <http://unlalert.unl.edu>.

Additional Emergency Procedures can be found here:

[http://emergency.unl.edu/doc/Emergency\\_Procedures\\_Quicklist.pdf](http://emergency.unl.edu/doc/Emergency_Procedures_Quicklist.pdf)

### **Additional Campus Support Resources:**

**Counseling and Psychological Services (CAPS)** provides **confidential** counseling services and to help support your well-being.

**UNL CAPS:** [Learn more or book an appointment here](#)

UNL offers a variety of options to students to aid them in dealing with stress and adversity. Counseling and Psychological & Services (CAPS) is a multidisciplinary team of psychologists and counselors that works collaboratively with Nebraska students to help them explore their feelings and thoughts and learn helpful ways to improve their mental, psychological and emotional well-being when issues arise. CAPS can be reached by calling 402-472-7450. Big Red Resilience & Well-Being provides one-on-one well-being coaching to any student who wants to enhance their well-being. Trained well-being coaches help students create and be grateful for positive experiences, practice resilience and self-compassion, and find support as they need it. BRRWB can be reached by calling 402-472-8770.

### **UNL Title IX**

UNL Title IX Resources & Contact Information: <https://www.unl.edu/equity/title-ix>

UNL Title IX Training for Students is available my MyRED: <https://myred.nebraska.edu>

UNL Victim Resources: <https://womens-center.unl.edu/victim-resources>

UNL Office of Academic Success & Intercultural Services (OASIS): <https://www.unl.edu/oasis/>

UNL LGBTQA+ Resource Center: <https://lgbtqa.unl.edu/welcome>

UNL Women's Center: <https://womens-center.unl.edu/>