Meeting time: Online, asynchronous
Prerequisite: ENCE 3318 or consent of the Department of Civil and Environmental Engineering.

Instructor: Dr. Robert Mahon,
Departments of Earth and Environmental Sciences, Civil and Environmental Engineering

Phone: (504) 208-1392 (EES Office)
Email: rcmahon@uno.edu
Office Location: EN822, GP1062
Office Hours: Monday 5:00-7:45pm central (online using Zoom)

Course Description: Particle size analysis, fluid-particle systems, incipient motion; bedload, suspended load, and total load; bedforms; sediment measurement; physical and numerical modeling of sediment transport; river modeling, transport of liquid-solid mixtures in pipes; dredging equipment; hydraulic and mechanical dredging; geotechnical properties of dredged sediments; environmental impacts and beneficial use.

Student Learning Objectives:
At the completion of this course:

- Students should be able to apply basic principles of fluid mechanics to problems associated with sediment transport in open channel flows and conduits
- Students should be able to understand the methods of sediment characterization and transport rate measurement in rivers
- Students should be able to use models and indirect methods to evaluate transport of sediment in rivers.
- Students should be able to evaluate and compare different dredging and conveyance methods for a project
- Students should be able to evaluate site-specific soil conditions as dredging source material
- Students should be able to evaluate the environmental impacts of dredging for a project
- Students should be able to evaluate transport of dredged materials for coastal restoration projects

Course Management
Communication, delivery of lecture materials, and distribution of assignments will all be conducted through Moodle. Students should familiarize themselves with the course layout and resources in https://moodle.uno.edu. In addition, there is a Q&A forum in the Moodle site for students to communicate and ask/answer each other’s questions. This forum will be monitored by the instructor and I will chime in with answers where needed.

Course Weekly Timeline
The typical timeline for course sections will be Thursday through the following Thursday. Lectures and quizzes/problem sets will be posted Thursday evenings generally. I will hold office hours/discussion session the next Monday during the scheduled class period. Assignments will then be due a week from their assigned date on Thursday by 11:59pm.
Course Evaluation

Grading: Total class grade: 90% or above = A, 80-89.9% = B, 70-79.9% = C, and 60-69.9% = D.

   Midterm Exam – 25%
   Quizzes/Problem Sets – 50%
   Final Exam – 25%

Extra Credit: No extra credit will be offered under any circumstances.

Textbook and Notes: No textbook will be assigned for this course. All course lectures and notes will be posted on the course Moodle site. Portions of text, as well as published literature including necessary equations and background material will be posted on the course Moodle site where necessary. In addition, I have included a reference section in Moodle with several papers that may be helpful for background or derivations.

Problem Sets: Problem sets will be assigned on approximately a weekly basis. A significant part of engineering professionalism is written communication. Therefore, all assignments should be neat, legible, and orderly. For each homework assignment, turn-in links will be provided in Moodle where you may either upload a scanned version of hand-written assignments, or pdf copies of digitally prepared work. Write the problem number, given data and what is required to compute. Show the computations clearly with the formula or equations that you use and also the substituted values. Assignments should be turned in as a single pdf file of answers, along with a file showing work if done in a computer program. For code, this can be done as a pdf using markdown or livescripts, or using an excel spreadsheet. Please make these as coherent/easy to navigate as possible so I can assign partial credit in the case of calculation errors.

Quizzes: Quizzes will be given in association with online lectures. They will be intended to demonstrate whether you grasped the material in lecture and may involve a short calculation. Quizzes will be timed, open note, and administered in Moodle.

Exams: One mid semester examination will be distributed March 18 and due March 25th. The Mid semester examination will cover topics up to one week before the day of the exam distribution and will likely involve a real dataset from the flume lab. The Final Exam will cover topics not covered by the midterm and will be given on Monday May 17th, 2021 (5:30 PM – 7:30 PM), according to the University Schedule. Both exams will be open note, and will be administered in Moodle. They will involve calculations similar to those seen on problem sets throughout the course and well prepared spreadsheets or code will significantly improve your chances of success on these exams.

Late Assignment Policy: Any assignment turned in after the specified due date will be considered late and will result in deducted points, except in the case of a valid university excused absence. Make-ups will only be given for verifiable written excuses specifically recognized by the University (illness of the student, or of an immediate family member, death of an immediate family member, participation on trips related to certain University functions, major religious holidays). Make-ups after one week has passed will be permitted only under extenuating circumstances.

Attendance Policy: Class attendance is in accordance with the published university policy. Regular attendance is required in this course. Attendance will be recorded and scored through the weekly lecture quizzes. You are responsible for material identified in the Reading/Lecture schedule listed in the syllabus and covered in class, even if absent from class for authorized activities.

Academic Honesty: Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty. Refer to the Academic Dishonesty Policy (http://www.uno.edu/student-affairs/documents/academic-dishonesty-policy-rev2014.pdf) for further

**Students with disability:** It is University policy to provide, on a flexible and individual basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirement. Students with disabilities should contact the Office of Disability Services (LIB 120) as well as their instructors to discuss their individual needs for accommodations. See the UNO Policy for Students with Disabilities at [http://www.ods.uno.edu/](http://www.ods.uno.edu/)

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**Spring 2021 ENCE 6334 Sediment Transport and Dredging Course Schedule**

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<tr>
<th>Lecture</th>
<th>Week of</th>
<th>Material Covered</th>
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<tbody>
<tr>
<td>1</td>
<td>2/4-2/11/2021</td>
<td>Intro and river mechanics review</td>
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<tr>
<td>2</td>
<td>2/11-2/18/2021</td>
<td>River morphology &amp; upland transport (mon-tue Mardi Gras break)</td>
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<tr>
<td>3</td>
<td>2/18-2/25/2021</td>
<td>Bed forms</td>
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<tr>
<td>4</td>
<td>2/25-3/4/2021</td>
<td>Shear stress and stress partitioning</td>
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<tr>
<td>5</td>
<td>3/4-3/11/2021</td>
<td>Bedload</td>
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<td>6</td>
<td>3/11-3/18/2021</td>
<td>Suspended load</td>
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<td></td>
<td>3/18-3/25/2021</td>
<td>mid-semester examination</td>
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<tr>
<td>7</td>
<td>3/25-4/1/2021</td>
<td>Field measurements</td>
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<td>8</td>
<td>4/1-4/8/2021</td>
<td>Transport formulae</td>
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<td>9</td>
<td>4/8-4/15/2021</td>
<td>Reservoir sedimentation modeling</td>
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<td>10</td>
<td>4/15-4/22/2021</td>
<td>Methods of sediment conveyance</td>
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<tr>
<td>11</td>
<td>4/22-4/29/2021</td>
<td>Geotechnical properties of dredged sediment</td>
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<tr>
<td>12</td>
<td>4/29-5/6/2021</td>
<td>Dredge pumps and equipment</td>
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<tr>
<td>13</td>
<td>5/6/2021</td>
<td>Beneficial Use of Dredge Material</td>
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<tr>
<td></td>
<td>5/17/2021 5:30-7:30pm</td>
<td>FINAL EXAM</td>
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Withdrawal Policy – Undergraduate only
Students are responsible for initiating action to resign from the University (withdraw from all courses) or from a course on or before dates indicated in the current Important Dates calendar. Students who fail to resign by the published final date for such action will be retained on the class rolls even though they may be absent for the remainder of the semester and be graded as if they were in attendance. Failure to attend classes does not constitute a resignation. Check the dates and charges associated on the Registrar’s website.

Incomplete Policy – Undergraduate only
A grade of I is assigned when, due to extenuating circumstances beyond their control, students engaged in passing course work are unable to complete class assignments within the time frame of the course’s session. Before agreeing to the use of an incomplete grade in any course, an Incomplete Grade Agreement Form must be completed. Details regarding deadlines for completing the I grade, when the incomplete converts to a grade of F, and a link to the form are on the Academic Affairs website.

Repeat Policy
When a student is permitted to repeat a course for credit, the last grade earned shall be the one which determines course acceptability for degree credit. A student who has earned a C or better in a course may not repeat that course unless, (1) the catalog description indicates that the course may be repeated for credit, or (2) the student’s Dean gives prior approval for documented extenuating circumstances.

Graduate Policies
Graduate policies often vary from undergraduate policies. To view the applicable policies for graduate students, see the Graduate Student Handbook.

Academic Dishonesty Policy
Policies for academic conduct are here.

Safety Awareness Facts and Education
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here.

UNO Counseling Services and UNO Cares
UNO offers care and support for students in any type of distress. Counseling Services assist students in addressing mental health concerns through assessment, short-term counseling, and career testing and counseling. First-year students often have unique concerns, and UNO Cares is designed to address those students’ needs. Contact UNO Cares.

Emergency Procedures
Sign up for emergency notifications via text and/or email at E2Campus Notification. All emergency and safety procedures are explained at the Emergency Health and Safety Office.

Diversity at UNO
As the most diverse public university in the state, UNO maintains a Diversity Affairs division to support the University’s efforts towards creating an environment of healthy respect, tolerance, and appreciation for all people, and the expression of intellectual point of view and personal lifestyle. The Office of Diversity Affairs promotes these values through a wide range of programming and activities.

Learning and Support Services
Help is within reach in the form of learning support services, including tutoring in writing and math and other supplemental instruction. Visit the Learning Resource Center in LIB 126.
Affirmative Action and Equal Opportunity
UNO is an equal opportunity employer. The Human Resource Management department has more information on UNO’s compliance with federal and state regulations regarding EEOC in its Policies and Resources website.

COVID-19 Health-Related Absences
Students should evaluate their health status regularly, refrain from coming to campus if they are ill, and seek appropriate medical attention for treatment of illness. Students should notify (email) their instructors about their absence as soon as possible, so that accommodations can be made. In the event of COVID-19 illness, students should also complete the Campus Reporting Form. Please note that medical excuse may be required at the discretion of the department chair and/or college dean.