**ESCI 654 Fate and Transport in the Environment** — Fall 2020, 4 credits
Lecture: T & Th 11:10-12:30, Demeritt 112
Lab: W 9:10-10:00 or 1:10-2:00, James 221 (computer room) unless otherwise announced

**Description:** An introduction to the basic processes controlling the migration and transformation of chemicals in surface water, groundwater, and the atmosphere, including advection, diffusion, dispersion, retardation, and chemical reaction. Extensive practice with quantitative problem solving in the environmental sciences, including constructing and using box models.

**Prof. Anne Lightbody**, James 236, mailbox in James 214, anne.lightbody@unh.edu
**Teaching Assistant** to be determined

**Assessment:** Course assignments include the following elements.

Cumulative final exam (electronic)
Quizzes (electronic or in person)
Homework (electronic)
Homework peer grading (electronic)
Projects (electronic or in person)
Question of the Day & course surveys (electronic)
Labs (electronic or in person)
Lecture completion (electronic or in person)

**Required course materials:**
ESCI 654 Textbook, posted as a PDF on myCourses and available (~$30) in hard copy from the Bookstore.
ESCI 654 Lectures Notes, posted as PDFs on myCourses and available (~$30) in hard copy from the Bookstore

**Optional textbook:**
John Taylor, An Introduction to Error Analysis, 2nd edition, University Science Books, 1997, on 2-hour reserve at UNH Physics library, or ~$40 to purchase new

**Content delivery:**
All course activities may be completed either in person or electronically. Students will be expected to "attend" class, either in the classroom or via Zoom, and be prepared to ask and answer questions. The class is run in an interactive format, and you are responsible for all material discussed in lecture and lab.

For in-person activities in rooms with attendance caps, attendance will be distributed on a rotating basis among students who wish to attend in person. Appropriate personal protective equipment and social distancing will be required for students who attend in person.

ESCI 654 lectures will be delivered face-to-face in a large lecture hall that can accommodate all students who wish to attend. The lectures will be synchronously broadcast via Zoom, and remote students will have the opportunity to ask questions during class via Zoom chats. The synchronous broadcast will be recorded for later viewing.

ESCI 654 labs may be completed either in person or electronically. All students will be expected to submit the same

- Ten of the labs will be delivered face-to-face in a computer room with limited capacity. These labs will be synchronously broadcast via Zoom, and remote students will have the opportunity to ask questions during class via Zoom chats. The synchronous broadcast will be recorded for later viewing.
- Two of the labs involve outdoor data collection. Synchronous remote participation will not be possible, but video will be posted later, or students can complete an alternative activity at their home.

- Two of the labs involve indoor data collection in a room with limited capacity. These labs will be synchronously broadcast via Zoom, and remote students will have the opportunity to ask questions during class via Zoom chats. The synchronous broadcast will be recorded for later viewing.

All course materials, including videos and assignment instructions, will be made available via myCourses.