Course overview:
This course is an advanced dive into the world of soils. It explores topics of soil physical properties as related to water and solute flow including texture, structure, specific surface, soil-water interactions, and colloidal behavior.

Format:
Lecture on Tuesdays with hands-on activities, problem presentations, and/or discussion on Thursdays. All material will be posted on Canvas.

Required prior courses:
ESRM 210/510: Intro Soils
Pre-calculus (recommended)

Recommended (not required) text:

Grading:
This class uses a 4.0 scale common to the University of Washington. You can find it [here](#).

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<thead>
<tr>
<th>Component</th>
<th>Percent</th>
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<tr>
<td>In-class activities</td>
<td>40</td>
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<td>Homework</td>
<td>30</td>
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<td>Exams</td>
<td>30</td>
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Course topics and outline:

Basic relationships
- General physical properties of soil
  - Soil physics
  - Disperse 3-phase systems
  - Volume/mass relationships
  - Soil profile

Solid phase
- Physical characteristics
  - Soil separates and textural class
  - Structure and aggregation
  - Measurement
- Physio-chemical characteristics
  - Inorganic/organic colloidal fractions

Liquid phase
- Properties of water
  - Structural characteristics
  - States and molar properties
  - Fluid properties
- Content and potential energy of soil water
  - Soil wetness
  - Energy status
  - Water potential components
  - Soil moisture characteristic curve
  - Hysteresis
  - Measurement
- Movement of soil water
  - Water flow in saturated soil
  - Water flow in unsaturated soil
  - Measurement

Solid-liquid interaction
- Water flow in the field
  - Water balance
  - Infiltration
  - Redistribution
  - Flow through structural voids
  - Evaporation
  - Measurement
- Solute transport
  - Solute conservation
  - Convection-dispersion
  - Transfer functions
  - Solute management
Course policies:

Late work/missing class: If you cannot make it to class, whether you’re not feeling well, are on vacation, have a conflict with another class, or were temporarily abducted by aliens, please let me or Jalene know at least 2 hours in advance and we can set up a time for you to make up any assignments. Again, please keep your germs to yourself and do not come to class sick!

If no notice is given prior to 9:30 am on the day of class, you will be able to make up the quiz/assignment for 75% credit if done within 2 days of the original due date. No credit will be given for assignments completed more than two days late. If it happens again, no make-up will be provided. Extra points and exams are not available for make-up. Please note that emergency situations will be dealt with on a case-by-case basis.

Etiquette and Netiquette: You are expected to behave yourself in online and classroom spaces. Be respectful, kind, and, when you offer criticism, be sure it is constructive. This classroom is a "brave space" which means that we respect all views, even when they stand in stark opposition to our own. However, if you are having any issues with the behavior of your classmates, reader/grader, or professor, please come forward. If you are ever feeling marginalized, please stand up.

University of Washington policies:

Academic Integrity: Plagiarism, cheating, and other misconduct are serious violations of your contract as a student. You are expected to know and follow the University's policies on cheating and plagiarism. Any suspected cases of academic misconduct will be handled according to University regulations. The University of Washington Student Conduct Code (WAC 478-121) defines prohibited academic and behavioral conduct and describes how the University holds students accountable as they pursue their academic goals. Allegations of misconduct by students may be referred to the appropriate campus office for investigation and resolution.

The University takes academic integrity very seriously. Behaving with integrity is part of our responsibility to our shared learning community. If you’re uncertain about if something is academic misconduct, ask me. I am willing to discuss questions you might have.

Acts of academic misconduct may include but are not limited to:

- Cheating (working collaboratively on quizzes/exams and discussion submissions, sharing answers and previewing quizzes/exams)
- Plagiarism (representing the work of others as your own without giving appropriate credit to the original author(s))
- Unauthorized collaboration (working with each other on assignments)

Concerns about these or other behaviors prohibited by the Student Conduct Code will be referred for investigation and adjudication by the Dean's Office for the college to which the student belongs.

More detailed information about the student code can be found online here and here.

Disability Accommodations: Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate
your approved accommodations to me at your earliest convenience so we can discuss your needs in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, and serious physical issues), you are welcome to contact DRS by phone at 206-543-8924 or email them at uwdrs@uw.edu or disability.uw.edu. DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

Online Privacy: The UW online privacy statement is available online here.

Website Usage: The UW website terms and conditions of usage statement is available online here.

Religious Accommodations: Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW’s policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy. Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form.

Campus Safety: Call SafeCampus at 206-685-7233 anytime – no matter where you work or study – to anonymously discuss safety and well-being concerns for yourself or others. SafeCampus’s team of caring professionals will provide individualized support, while discussing short- and long-term solutions and connecting you with additional resources when requested.