# Topics/Book Chapters

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<thead>
<tr>
<th>Number</th>
<th>Topic</th>
<th>Weekly Lab</th>
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<tr>
<td>1</td>
<td>Soils and Landscapes (Jan 8-13)</td>
<td>Lab 0: Campus walking field trip (ex. credit)</td>
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<tr>
<td></td>
<td>a. What is soil and what does it do?</td>
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<td>b. Landscapes: Soil, water, rock</td>
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<td>c. Watersheds and landscape formation</td>
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<td>2</td>
<td>Soil Profiles and Their Formation (Jan 15-22)</td>
<td>Lab 1: Maps; Rocks and Soil Profiles</td>
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<td></td>
<td>a. Weathering of rocks</td>
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<td>b. Soil profile formation</td>
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<td>c. Soil horizons</td>
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<td>3</td>
<td>Physical Properties of Soils (Jan 24-29)</td>
<td>Lab 2: Soil Properties and Profiles</td>
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<td>a. Soil texture</td>
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<td>b. Soil density and porosity</td>
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<td>c. Managing soil physical properties</td>
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<td>4</td>
<td>Soil Horizons and Classification (Jan 31-Feb 5)</td>
<td>Lab 3: Soil Profiles in the Field (Whitehall)</td>
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<td>a. The soil taxonomy system</td>
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<td>b. Diagnostic horizons</td>
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<td>c. Soil orders</td>
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<td>5</td>
<td>Chemical Properties of Soils (Feb 7-12)</td>
<td>Lab 5: Soil Physical Properties Lab</td>
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<td>a. Soil mineralogy</td>
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<td>b. pH and ion exchange</td>
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<td>c. Acidity and salinity</td>
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<td>6</td>
<td>Plant Nutrients (Feb 14-19)</td>
<td>Lab 6: Cation Exchange Capacity</td>
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<td>a. Plant nutrition and essential elements</td>
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<td>c. Microelements</td>
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<td>7</td>
<td>Soil Biology and Productivity (Feb 24 - 28)</td>
<td>Lab 13: Heavy Metals in the Environment</td>
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<td>a. Soil organisms</td>
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<td>b. Roles of soil organisms</td>
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<td>c. Productivity of agricultural and forest soils</td>
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<td>8</td>
<td>Fertilization (Mar 2-6)</td>
<td>Lab 7: Soil Testing and Organic Matter</td>
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<td>a. Fertilizers</td>
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<td>b. Nutrient and soil management</td>
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<td>c. Sustainability</td>
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**Exam 1** - Chapters 1-5 (Feb 21)
Spring Break March 9-13   UGA Instruction canceled March 16-27

9. Soil Water (Mar 30- April 1)                Lab 8: Soil Water Content
   a. Interaction of water with soil
   b. Storage capacity of soils and profiles
   c. Water flow in soils

Exam 2: Weeks 6-8 (open April 6-8 for one 2-hour period on eLC)

10. Precipitation and Evapotranspiration (April 3-6)  Lab 9: Water Movement
    a. Precipitation
    b. Evapotranspiration
    c. Field water budgets

11. Infiltration, Streamflow, Groundwater (April 8-10)
    a. Infiltration (forest and cropland)
    b. Sources of stream flow
    c. Aquifers

    a. Hydrographs
    b. Basic hydraulics
    c. Management effects on hydrology

13. Erosion and Sedimentation (April 17-20)           Lab 12: Discharge and Soil Erosion
    a. Importance of erosion
    b. Erosion mechanics
    c. Erosion control

14. Waste Treatment and Assimilation (Apr 22-24)
    a. Contaminants and Risk Assessment
    b. Waste Water Treatment
    c. Solid Waste Management

Exam 3: Weeks 9 -13 (open April 24-27 for one 2-hour period on eLC)

Review
    a. Monday, April 27 (Soils review)
    b. Tuesday, April 28 (Hydrology review)
    c. Reading Day: Wednesday April 29

Final Exam Weeks 1-14: Wednesday, May 6, (open May 6-8 for one 4-hour period on eLC)
The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Course Study

- Read all lecture and lab materials
- Review powerpoint presentations and lecture notes
- You're responsible for all course content
- You'll be given data for your labs, which you'll submit on eLC
- Exams and quizzes will also be conducted on eLC

Online Q&A (optional)

- During normal lecture (MWF 11:15-12:05) and lab times
- Link emailed and on eLC - please share with classmates (e.g., GroupMe)
- Zoom Meeting ID: 688 125 5166
  - https://zoom.us/j/6881255166
  - One tap mobile
    +13126266799,6881255166# US (Chicago)
    +19292056099,6881255166# US (New York)
  - Dial by your location
    +1 312 626 6799 US (Chicago)
    +1 929 205 6099 US (New York)
    +1 346 248 7799 US (Houston)
    +1 669 900 6833 US (San Jose)
    +1 253 215 8782 US
    +1 301 715 8592 US
  - Find your local number: https://zoom.us/u/abggaSGhl6

Exams

- Three-day windows
  - Exam 2 (Chap 6-8): Opens Mon, Apr 6
  - Exam 3 (Chap 9-13): Opens Fri, Apr 24
  - Final (Chap 1-14): Opens Wed, May 6
- Two-hr periods on eLC
- Can submit exam once
- Questions randomized for each student
- Double time for final and DRC-registered students
- Grades automatically entered into eLC
Instructors and Teaching Assistants

- Matt Levi, MPS 3107, matthew.levi@uga.edu
- Todd Rasmussen, Warnell 4-116, trasmuss@uga.edu
1. Nathan Melear, Warnell 4-117, nmelear@uga.edu
2. Behnoosh Abassnezhad, Warnell 4-217A, behnoosh@uga.edu
3. Anish Subedi, MPS, anish.subedi@uga.edu
4. Nadia Noor, MPS 4111B, nadia.noor25@uga.edu
5. Scott Raulerson, Warnell 4-115, scott.raulerson@uga.edu

Summary

- This is a junior-level course designed as an introduction to soil science and hydrology; providing students with sufficient information to serve as a sole course – or as an introduction for advanced courses -- in soil science and hydrology.
- The subject matter is oriented towards students majoring in crop and soil sciences, hydrology and water resources, ecology, landscape design, environmental sciences, forestry, plant sciences, horticulture, wildlife and fisheries, environmental economics, engineering, and related fields.
- Lectures and labs are complimentary in presenting information of both a theoretical and practical nature.
- Prerequisites: Algebra, Introductory Chemistry.

Objectives

- How to describe and interpret landscape and soil profile information in the field and from soil maps;
- How to read and interpret topographic and hydrologic information within landscape and watershed frameworks;
- Familiarity with key soil properties and how they relate to soil management and productivity;
- Understanding how landscape management affects hydrologic processes in forest and cultivated settings;
- The effect of management on environmental quality in terms of soil productivity and water quality.
Class Meetings

- Lectures are MWF 11:15 to 12:05 in MPS 2401
- Labs meet weekly in MPS 1201, or as indicated
  - Lab 1: Wed, 1:25 - 3:20
  - Lab 2: Wed, 3:35 - 5:30
  - Lab 3: Thurs, 8:30 - 10:30
  - Lab 4: Thurs, 11:00 - 1:00
  - Lab 5: Thurs, 2:00 - 4:00
- Attendance in lecture is not taken, but is highly advised, as most important material for the course is covered in lecture. Weekly lecture quizzes are given.
- Attendance at your assigned lab is mandatory. Lab assignments are due at the end of lab, or as indicated. Weekly lab quizzes are given.
- Unexcused lab absences result in a 0 grade for that laboratory. Lab assignments that are late, or are disorganized or messy, are penalized.

Important Note

- All academic work must meet the standards contained in "A Culture of Honesty", the University's policy and procedures for handling cases of suspected dishonesty, which can be found at www.uga.edu/ovpi.
- UGA Student Honor Code: "I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others."
- All students are responsible to inform themselves about these standards before performing any academic work.

Course Materials

- The course website is online at: www.hydrology.uga.edu/rasmussen/class/3060/ which contains course information, old exams, and other study materials.
- Weekly reading assignments are from “Soil Science Simplified”, available online through UGA Galileo.
- The course textbook, “Readings in Soils and Hydrology”, is available at Bel-Jean Copy & Print Center (downtown Athens), and must be purchased the first week of class.
- Read over assigned materials by Monday of each week and have read the lab materials before coming to your assigned lab.
- Material for quizzes and exams come from reading materials (book, lecture and lab notes).
- You are responsible for all reading materials, whether discussed in class or not.
Course Grading

- This course is graded on a 90/80/70/60% basis, corresponding to A/B/C/D/F, with a plus or minus added for grades 2% above or below these cutoffs.
- Exams and quizzes are multiple choice, fill-ins, definitions, short essay, and problems. Weekly quizzes are given in both lecture and lab.
- Hourly exams are given during the class period on Fridays as listed in the schedule.
- Make-up quizzes, labs, and exams can only be made up for previously excused absences as approved by course instructors.
- Both lab and lecture grades are combined into a single course grade, based on:
  - Hourly exams: 3 @ 100 pts = 300 (44%)
  - Lecture quizzes: 14 @ 5 pts = 70 (10%)
  - Lab assignments: 12 @ 10 pts = 120 (18%)
  - Lab quizzes: 12 @ 3 pts = 36 (5%)
  - Final exam: 1 @ 150 pts = 150 (22%)
  - Total points = 676 (100%)