

# Geology and Ecology of Soils schedule, Fall 2015

Last updated: Friday August 21 2015

<i>Date</i>	<i>Events</i>
—Week 1—	
Tu 01 Sep	Introducing soils <i>Readings:</i> Brady and Weil Ch. 1
Th 03 Sep	Weathering: from rock and plant to soil <i>Readings:</i> Brady and Weil Ch. 2, pp. 27-50
Fr 04 Sep	Sand, silt, and clay: soil texture <i>Readings:</i> Brady and Weil Ch. 4, pp 96-104
—Week 2—	
Tu 08 Sep	Organic matter, humus and other mysteries <i>Readings:</i> Brady and Weil Ch. 11, pp. 372-378
Th 10 Sep	<b>No class: Nick on regional geology trip</b>
Fr 11 Sep	<b>No class: Nick on regional geology trip</b>
—Week 3—	
Tu 15 Sep	Soil processes and horizon development <i>Readings:</i> Brady and Weil Ch. 2, pp. 50-57
Th 17 Sep	Pore spaces and aggregates <i>Readings:</i> Brady and Weil Ch. 4, pp 104-129
Fr 18 Sep	Soil classification; Mollisols, Alfisols and Ultisols <i>Readings:</i> Brady and Weil Ch. 3
—Week 4—	
Tu 22 Sep	Soils of extreme climates: Oxisols, Spodosols, Aridosols, and Gelisols <i>Readings:</i> Continue to reference B and W Ch. 3
Th 24 Sep	Soils with unusual conditions: Entisols, Inceptisols, Andisols, Histosols, and Vertisols <i>Readings:</i> Continue to reference B and W Ch. 3
Fr 25 Sep	<b>Field trip: describing soils</b> <i>Readings:</i> Skim the USDA Field Book
—Week 5—	
Tu 29 Sep	<b>Exam 1</b>
Th 01 Oct	Soil water and water potential <i>Readings:</i> Brady and Weil Ch. 5
Fr 02 Oct	Plants and soil water <i>Readings:</i> Chapin et al., Ch. 4
—Week 6—	
Tu 06 Oct	Irrigation and drainage <i>Readings:</i> Brady and Weil Ch. 6
Th 08 Oct	<b>No classes: October Break</b>
Fr 09 Oct	<b>No classes: October Break</b>

<i>Date</i>	<i>Events</i>
—Week 7—	
Tu 13 Oct	Soil erosion and conservation <i>Readings:</i> Brady and Weil Ch. 14
We 14 Oct	<b>Last day to drop without record</b>
Th 15 Oct	Clay and humus chemistry, cation exchange <i>Readings:</i> Brady and Weil Ch. 8
Fr 16 Oct	Soil nutrients and nutrient availability <i>Readings:</i> Brady and Weil Ch. 12
—Week 8—	
Tu 20 Oct	Fertilizers and nutrient management <i>Readings:</i> Brady and Weil Ch. 13
Th 22 Oct	<b>Field trip: Agriculture in Walla Walla</b>
Fr 23 Oct	Soil pH and salinity <i>Readings:</i> Brady and Weil Ch. 9
—Week 9—	
Tu 27 Oct	Soil aeration, oxidation, and wetlands <i>Readings:</i> Brady and Weil Ch. 7
Th 29 Oct	Soil contamination and remediation <i>Readings:</i> Brady and Weil Ch. 15
Fr 30 Oct	Working with elemental data
—Week 10—	
Tu 03 Nov	<b>Exam 2</b>
Th 05 Nov	Primary production: the energy source <i>Readings:</i> Chapin et al., Ch 5
Fr 06 Nov	The rhizosphere and mycorrhizal associations <i>Readings:</i> Paul and Clark Ch. 11
—Week 11—	
Tu 10 Nov	Soil organisms, Part 1 <i>Readings:</i> References include Coleman Ch. 4 and Brady and Weil Ch. 10
Th 12 Nov	Soil organisms, Part 2 <i>Readings:</i> See above
Fr 13 Nov	Soil organisms, Part 3 <i>Readings:</i> See above
—Week 12—	
Tu 17 Nov	Examination of soil cultures
Th 19 Nov	Carbon decomposition and global C balance <i>Readings:</i> Chapin et al., Ch. 7
Fr 20 Nov	Carbon and climate, soil C sequestration <i>Readings:</i> Schwartz, 2014
<b>November 21-29: Thanksgiving Break</b>	
—Week 13—	

<i>Date</i>	<i>Events</i>
Tu 01 Dec	<b>Soil respiration data (meet in Science computer lab)</b>
Th 03 Dec	Critical Zone processes 1: Models of soil formation and element profiles <i>Readings:</i> Brantley et al., 2007
Fr 04 Dec	Critical Zone processes 2: Energy balance and mass transfer <i>Readings:</i> Rasmussen et al., 2011
—Week 14—	
Tu 08 Dec	Paleosols: soils of the past <i>Readings:</i> Retallack 1988
Th 10 Dec	Interpreting climate from paleosols
Fr 11 Dec	<b>Field trip: Paleosols</b>
—Week 15—	
Tu 15 Dec	<b>Third exam: Tue 15 Dec, 9-11 am</b>