Geology and Ecology of Soils schedule, Spring 2012

Last updated: Thursday March 15 2012

Date	*Events*
	—Week 1—
Tu 17 Jan	Introducing soils *Readings:* Brady and Weil Ch. 1
Th 19 Jan	Weathering: from rock and plant to soil *Readings:* Brady and Weil Ch. 2, pp. 27-50
	—Week 2—
Mo 23 Jan	Sand, silt, and clay: soil texture *Readings:* Brady and Weil Ch. 4, pp 96-104
Tu 24 Jan	Organic matter, humus and other mysteries *Readings:* Brady and Weil Ch. 11, pp. 372-378
Th 26 Jan	Soil processes and horizon development *Readings:* Brady and Weil Ch. 2, pp. 50-57
	—Week 3—
Mo 30 Jan	Models of soil formation and element profiles *Readings:* Brantley et al., 2007
Tu 31 Jan	Pore spaces and aggregates *Readings:* Brady and Weil Ch. 4, pp 104-129
Th 02 Feb	Soil water and water potential *Readings:* Brady and Weil Ch. 5
	—Week 4—
Mo 06 Feb	Soil aeration, wetlands, and oxidation *Readings:* Brady and Weil Ch. 7, pp. 201-218 **Pete Sak, Weathering presentation: 9 am, Science 112**
Tu 07 Feb	**Exam 1**
Th 09 Feb	Clay and humus chemistry, cation exchange *Readings:* Brady and Weil Ch. 8
	—Week 5—
Mo 13 Feb	Soil nutrients and nutrient availability *Readings:* Brady and Weil Ch. 12
Tu 14 Feb	Soil classification; mollisols, alfisols and ultisols *Readings:* Brady and Weil Ch. 3
Th 16 Feb	Soils of extreme climates: oxisols, spodosols, aridosols, and gelisols
	—Week 6—
Mo 20 Feb	**No classes: Presidents' Day**
Tu 21 Feb	Soils with unusual conditions: entisols, inceptisols, andisols, histosols, and vertisols
Th 23 Feb	Introducing ecosystem ecology *Readings:* Schlesinger 1997, Ch. 1
	—Week 7—

Date	*Events*
Mo 27 Feb	Primary production: plants, plant roots, and the rhizosphere
Tu 28 Feb	Mycorrhizal associations
Th 01 Mar	Plants and soil water
	Readings: Chapin 2002, Ch. 4
	—Week 8—
Mo 05 Mar	**Exam 2**
Tu 06 Mar	Soil microbes: the invisible engine
Th 08 Mar	Soil microfauna: the protozoa
	Readings: Coleman Ch. 4, pp. 79-89
	March 10-25: Spring Break
	—Week 9—
Mo 26 Mar	**Introduction to class research projects**
Tu 27 Mar	Soil mesofauna: a field guide to your compost pile, part 1
	Readings: Coleman Ch. 4, pp. 89-140 (note missing pages)
Th 29 Mar	Soil macrofauna: a field guide to your compost pile, part 2
	Readings: Brady and Weil Ch. 10, pp. 330-335
	—Week 10—
Mo 02 Apr	The energy source: carbon decomposition
Tu 03 Apr	Putting it all together: soil food webs
	Readings: Brady and Weil Ch. 10, pp. 322-330
Th 05 Apr	Plant-microbe interactions and the rhizosphere priming effect
	Readings: Cheng and Kuzyakov, 2005
	—Week 11—
Mo 09 Apr	Carbon and climate, soil C sequestration
Tu 10 Apr	**No classes: Whitman Undergraduate Conference**
Th 12 Apr	**Exam 3**
	—Week 12—
Mo 16 Apr	Soil erosion and conservation
	Readings: Brady and Weil Ch. 14
Tu 17 Apr	The global nitrogen cycle
	Readings: Chapin 2002, Ch. 9, pp. 215-223
Th 19 Apr	**No class: Regional geology trip**
	—Week 13—
Mo 23 Apr	Global cycles of phosphorus and potassium
	Readings: Chapin 2002, Ch. 9, pp. 197-215
Tu 24 Apr	Irrigation and drainage
	Readings: Brady and Weil Ch. 6
Th 26 Apr	Fertilizers and nutrient management
	Readings: Brady and Weil Ch. 13
Sa 28 Apr	**Optional field trip: local soils**
	—Week 14—
Mo 30 Apr	Soil contamination and remediation

Date	*Events*
	Readings: Brady and Weil Ch. 15
Tu 01 May	Paleosols: soils of the past
Th 03 May	Interpreting climate from paleosols
	—Week 15—
Mo 07 May	**Research presentations**
Tu 08 May	**Research presentations**
Sa 12 May	**Fourth exam: Sat 12 May, 2-4 pm**