

COURSE IMPLEMENTATION DATE: Winter 2009
 COURSE REVISED IMPLEMENTATION DATE: _____
 COURSE TO BE REVIEWED: April 2012
 (four years after UPAC approval) (month, year)

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

 Students are advised to keep course outlines in personal files for future use.
 Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

<u>GEOG 315</u>	<u>Geography</u>	<u>4</u>
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UCFV CREDITS
<u>Soil Process and Function</u>		
COURSE DESCRIPTIVE TITLE		

CALENDAR DESCRIPTION:

Soils provide nutrients to support primary productivity and are the foundation for global breadbaskets and terrestrial renewable resources. In this course we will evaluate the Canadian System of Soil Classification, learn to log soil pits in forested mountain landscapes, learn to identify soil properties, and assess how these properties support soil biota and primary productivity. To effectively evaluate and present data, in-class software-skills workshops will help students translate their ideas to computer graphics. Field trips outside of class time are required.

 PREREQUISITES: One of GEOG 201, 202, or 211; or BIO 210
 COREQUISITES:
 PRE or COREQUISITES:

SYNONYMOUS COURSE(S):

 (a) Replaces: _____
 (b) Cross-listed with: _____
 (c) Cannot take: _____ for further credit.

SERVICE COURSE TO: (department/program)

TOTAL HOURS PER TERM: 75
STRUCTURE OF HOURS:
 Lectures: 38 Hrs
 Seminar: _____ Hrs
 Laboratory: 25 Hrs
 Field experience: 12 Hrs
 Student directed learning: _____ Hrs
 Other (specify): _____ Hrs

TRAINING DAY-BASED INSTRUCTION:

 Length of course: _____
 Hours per day: _____

OTHER:

 Maximum enrollment: 25
 Expected frequency of course offerings: Every other year
 (every semester, annually, every other year, etc.)

 WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) Yes No
 WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) Yes No
 TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: Yes No

 Course designer(s): Jonathan Hughes

 Department Head: Ken Brealey

Supporting area consultation (UPACA1)

 Curriculum Committee chair: Moira Gutteridge-Kloster

 Dean/Associate VP: Eric Davis

Undergraduate Program Advisory Committee (UPAC) approval

 Date approved: Feb. 15, 2008

 Date of meeting: Feb. 22, 2008

 Date approved: Mar. 14, 2008

 Date approved: Mar. 18, 2008

 Date of meeting: Apr. 25, 2008

LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

- Show familiarity with soil classification at regional and global scales;
- Assess soil-mediated nutrient cycles and how they support primary productivity and biodiversity;
- Interpret and properly log soil profiles;
- Use relevant data presentation software (e.g., Adobe Illustrator and Excel);
- Write an advanced lab/field report;
- Show improved critical thinking, computation, and writing skills;
- Understand how soil processes and function transfer to a career in the environmental field.

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Course format will include lectures, laboratory sessions, and field trips.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Examination(s) Portfolio assessment Interview(s)

Other (specify):

PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS: *[Textbook selection varies by instructor. An example for this course might be:]*

Brady, N.C. and Weil, R. 2007. The Nature and Properties of Soils, 14th edition, Prentice Hall, 980 pp.
Carter, M.R. and Gregorich, E.G. 2007. Soil Sampling and Methods of Analysis, Second Edition. Taylor and Francis CRC Press, 1264 pp.
Montgomery, D.R. 2007. Dirt: The Erosion of Civilizations. University of California Press, 295 pp.

SUPPLIES / MATERIALS:

Laboratory and field notebook(s)

Lab coat

STUDENT EVALUATION: *[An example of student evaluation for this course might be:]*

Midterm exam	25%
Lab assignments	25%
Lab report	25%
Final exam	25%

COURSE CONTENT: *[Course content varies by instructor. An example of course content might be:]*

Tentative lecture schedule

Week	Topic
1	Introduction to course Lab: Soil surveys, part 1
2	Soil components, horizons, formation, and weathering Lab: Soil surveys, part 2
3	Soil classification Lab: Bulk density, texture by feel, consistency, part 1
4	Soil classification Lab: Bulk density, texture by feel, consistency, part 2
5	Physical properties: texture and structure Lab: Particle size analysis
6	Soil moisture Lab: Particle size analysis
7	Soil organic matter and nutrient cycles Lab: Nutrient testing
8	Acidity, cation exchange capacity, base saturation Lab: Soil moisture, infiltration, water holding capacity
9	Soil biology Lab: Data illustration, Adobe illustrator workshop
10	Soil pit analysis, UBC Research Forest
11	Soil pit analysis, Sumas Mountain
12	Soil management issues: Nutrients Lab: Field report workshop
13	Soil management issues: Erosion Lab: Open

Saturday field trip: Agricultural Soils of the Fraser Valley