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APR 8 2016

OFFICE OF THE SENATE COUNCIL

Course Information

Date Submitted: 11/16/2015

Current Prefix and Number: FOR - Forestry , FOR 356 LANDSCAPE ASSESSMENT

Other Course:

Proposed Prefix and Number: FOR 356

What type of change is being proposed?

Major Change

Should this course be a UK Core Course? No

1. General Information

a. Submitted by the College of: AGRICULTURE, FOOD AND ENVIRONMENT

b. Department/Division: Forestry

c. Is there a change in 'ownership' of the course? No

If YES, what college/department will offer the course instead: Select...

e. Contact Person

Name: Laura R. Lhotka

Email: laura.lhotka@uky.edu

Phone: 859-257-8718

Responsible Faculty ID (if different from Contact)

Name: Chris Barton

Email: barton@uky.edu

Phone: 859-257-2099

f. Requested Effective Date

Semester Following Approval: Yes OR Effective Semester:

2. Designation and Description of Proposed Course

a. Current Distance Learning (DL) Status: N/A

b. Full Title: LANDSCAPE ASSESSMENT

Proposed Title: Forest Soils and Hydrology

c. Current Transcript Title: LANDSCAPE ASSESSMENT

Proposed Transcript Title: Forest Soils and Hydrology

d. Current Cross-listing: none

Proposed – ADD Cross-listing :

Proposed – REMOVE Cross-listing:

e. Current Meeting Patterns

PRACTICUM: 40

Proposed Meeting Patterns

PRACTICUM: 40

f. Current Grading System: ABC Letter Grade Scale

Proposed Grading System: *Letter (A, B, C, etc.)*

g. Current number of credit hours: 5

Proposed number of credit hours: 1

h. Currently, is this course repeatable for additional credit? No

Proposed to be repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester? No

2i. Current Course Description for Bulletin: Students will learn to assess various landscape types through week-long, in-depth studies of five topic areas, while studying how the topics are interrelated. The topic areas are winter dendrology, wildlife, soils, hydrology, and health and protection. During the module, students will visit sites throughout Kentucky and the region.

Proposed Course Description for Bulletin: Students will learn to assess the physical environment of forested ecosystems by examining soil-plant-water relationships across a variety of landscape settings.

2j. Current Prerequisites, if any: Prereq: FOR 150, FOR 219, FOR 250, FOR 370, FOR 330, FOR 340, FOR 350, PLS 366, or consent of the field semester coordinator.

Proposed Prerequisites, if any: FOR 219, FOR 250, FOR 330, FOR 340, FOR 350, FOR 370, and PLS 366, or consent of the field semester coordinator.

2k. Current Supplementary Teaching Component:

Proposed Supplementary Teaching Component: No Change

3. Currently, is this course taught off campus? No

Proposed to be taught off campus? No

If YES, enter the off campus address:

4. Are significant changes in content/student learning outcomes of the course being proposed? Yes

If YES, explain and offer brief rational: FOR 356 is currently a 5-credit hour course that covers winter dendrology, wildlife, soils, hydrology, and forest health. The course material has been separated into four individual courses consisting of 1 or 2 credit hours each. FOR 356 is now a one-credit hour course and will focus on forest soils and hydrology. The practicum format of the course (40-hours per week) remains the same. The course will consist of one 40-hour week practicum instead of 5-weeks of 40 hours per week practicum.

5a. Are there other depts. and/or pgms that could be affected by the proposed change? No

If YES, identify the depts. and/or pgms:

5b. Will modifying this course result in a new requirement of ANY program? No

If YES, list the program(s) here:

6. Check box if changed to 400G or 500: No

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1.How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2.How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3.How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4.Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6.How do course requirements ensure that students make appropriate use of learning resources?

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10.Does the syllabus contain all the required components? NO

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|TTBA225|Terrell T Baker|FOR 356 CHANGE Dept Review|20150302

SIGNATURE|LGRABAU|Larry J Grabau|FOR 356 CHANGE College Review|20150716

SIGNATURE|JMETT2|Joanie Ett-Mims|FOR 356 CHANGE Undergrad Council Review|20160408

Course Change Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Open in full window to print or save

Generate R

Attachments:

Browse... Upload File

	ID	Attachment
Delete	5238	FOR 356 UGC Review Checklist.docx
Delete	5763	FOR356Syllabus111615_revised.pdf

First 1 Last

NOTE: Start form entry by choosing the Current Prefix and Number
(*denotes required fields)

	Current Prefix and Number:	FOR - Forestry / FOR 356 LANDSCAPE ASSESSMENT	*Proposed Prefix & Number:* (example: PHY 401G) ☑ Check if same as current	FOR 356
*	What type of change is being proposed?	☑ Major Change ☐ Major – Add Distance Learning ☐ Minor - change in number within the same hundred series, ex 799 is the same "hundred series" ☐ Minor - editorial change in course title or description which do change in content or emphasis ☐ Minor - a change in prerequisite(s) which does not imply a ch course content or emphasis, or which is made necessary by the significant alteration of the prerequisite(s) ☐ Minor - a cross listing of a course as described above		

Should this course be a UK Core Course? ○ Yes ◉ No

If YES, check the areas that apply:

☐ Inquiry - Arts & Creativity	☐ Composition & Communications - II
☐ Inquiry - Humanities	☐ Quantitative Foundations
☐ Inquiry - Nat/Math/Phys Sci	☐ Statistical Inferential Reasoning
☐ Inquiry - Social Sciences	☐ U.S. Citizenship, Community, Diversity
☐ Composition & Communications - I	☐ Global Dynamics

1. General Information

a. Submitted by the College of: AGRICULTURE, FOOD AND ENVIRONMENT Submission Date: 11/16/2015

b. Department/Division: Forestry

c.* Is there a change in "ownership" of the course?

○ Yes ◉ No If YES, what college/department will offer the course instead? Select...

e.* * Contact Person Name: Laura R. Lhotka Email: laura.lhotka@uky.edu Phone: 859-257-8718

* Responsible Faculty ID (if different from Contact) Chris Barton Email: barton@uky.edu Phone: 859-257-2099

f.* Requested Effective Date: ☑ Semester Following Approval OR Specific Term: 2

2. Designation and Description of Proposed Course.

a. Current Distance Learning(DL) Status:

◉ N/A
○ Already approved for DL*
○ Please Add
○ Please Drop

*If already approved for DL, the Distance Learning Form must also be submitted unless the department affirms (by checking this box) that the proposed chan affect DL delivery.

b.	**Full Title:**	LANDSCAPE ASSESSMENT	*Proposed Title:* *	Forest Soils and Hydrolog
c.	**Current Transcript Title** (if full title is more than 40 characters):		LANDSCAPE ASSESSMENT	
c.	*Proposed Transcript Title (if full title is more than 40 characters):*		Forest Soils and Hydrology	
d.	**Current Cross-listing:**		OR	

	☑ N/A		Currently[3] Cross-listed with (Prefix & Number):	none	
	Proposed – ADD[3] Cross-listing (Prefix & Number):				
	Proposed – REMOVE [3,4] Cross-listing (Prefix & Number):				
e.	**Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours [5] for each meeting patterr**				

Current:	Lecture	Laboratory[5]	Recitation	Discussion	Indep. Stu
	Clinical	Colloquium	Practicum: 40	Research	Residency
	Seminar	Studio	Other	Please explain:	
*Proposed: **	Lecture	Laboratory[5]	Recitation	Discussion	Indep. Stu
	Clinical	Colloquium	Practicum: 40	Research	Residency
	Seminar	Studio	Other	Please explain:	

f.	**Current Grading System:**	ABC Letter Grade Scale		
	*Proposed Grading System:**	◉ *Letter (A, B, C, etc.)* ○ *Pass/Fail* ○ *Medicine Numeric Grade (Non-medical students will receive a letter grade)* ○ *Graduate School Grade Scale*		
g.	**Current number of credit hours:**	5	*Proposed number of credit hours:**	1
h.*	**Currently, is this course repeatable for additional credit?**			○ Yes ◉
*	*Proposed to be repeatable for additional credit?*			○ Yes ◉
	If YES:	*Maximum number of credit hours:*		
	If YES:	*Will this course allow multiple registrations during the same semester?*		○ Yes ○

i. **Current Course Description for Bulletin:**

Students will learn to assess various landscape types through week-long, in-depth studies of five topic areas, while studying how the topics are interrelated. The topic areas are winter dendrology, wildlife, soils, hydrology, and health and protection. During the module, students will visit sites throughout Kentucky and the region.

* *Proposed Course Description for Bulletin:*

Students will learn to assess the physical environment of forested ecosystems by examining soil-plant-water relationships across a variety of landscape settings.

j. **Current Prerequisites, if any:**

Prereq: FOR 150, FOR 219, FOR 250, FOR 370, FOR 330, FOR 340, FOR 350, PLS 366, or consent of the field semester coordinator.

* *Proposed Prerequisites, if any:*

* FOR 219, FOR 250, FOR 330, FOR 340, FOR 350, FOR 370, and PLS 366, or consent of the field semester coordinator.

k. **Current Supplementary Teaching Component, if any:** ○ Community-Based Experience

		○ Service Learning ○ Both
	Proposed Supplementary Teaching Component:	○ Community-Based Experience ○ Service Learning ○ Both ◉ No Change
3.	**Currently, is this course taught off campus?**	○ Yes ◉
*	*Proposed to be taught off campus?*	○ Yes ◉
	If YES, enter the off campus address:	
4.*	**Are significant changes in content/student learning outcomes of the course being proposed?**	◉ Yes ○
	If YES, explain and offer brief rationale:	
	FOR 356 is currently a 5-credit hour course that covers winter dendrology, wildlife, soils, hydrology, and forest health. The course material has been separated into four individual courses consisting of 1 or 2 credit hours each. FOR 356 is now a one-credit hour course and will focus on forest soils and hydrology. The practicum format of the course (40-hours per week) remains the same. The course will consist of one 40-hour week practicum instead of 5-week of 40 hours per week practicum.	
5.	**Course Relationship to Program(s).**	
a.*	**Are there other depts and/or pgms that could be affected by the proposed change?**	○ Yes ◉
	If YES, identify the depts. and/or pgms:	
b.*	**Will modifying this course result in a new requirement[Z] for ANY program?**	○ Yes ◉
	If YES[Z], list the program(s) here:	
6.	**Information to be Placed on Syllabus.**	
a.	☐ Check box if changed to 400G or 500.	If changed to 400G- or 500-level course you must send in a syllabus and *you must include the differentiation* between undei graduate students by: (i) requiring additional assignments by the graduate students; and/or (ii) establishing different grading course for graduate students. (See *SR 3.1.4.*)

[Y] See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "not minor," the form will t appropriate academic Council for normal processing and contact person is informed.
[Z] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
[1] Signature of the chair of the cross-listing department is required on the Signature Routing Log.
[2] Removing a cross-listing does not drop the other course – it merely unlinks the two courses.
[3] Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting. Lab meeting gene least two hrs per wk for a semester for 1 credit hour. (See *SR 5.2.1.*)
[4] You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.
[5] In order to change a program, a program change form must also be submitted.

Course: FOR 356 **University Senate Syllabi Guidelines Review Checklist**

General Course Information

- ☒ **Full and accurate title of the course**
- ☐ Departmental and college prefix
- ☒ **Course prefix, number and section number**
- ☒ **Scheduled meeting day(s), time and place**

Instructor Contact Information (if specific details are unknown, "TBA" is acceptable for one or more fields)

- ☒ **Instructor name**
- ☐ Contact information for teaching/graduate assistant, etc.
- ☐ Preferred method for reaching instructor
- ☒ Office phone number
- ☒ **Office address**
- ☒ **UK email address**
- ☒ **Times of regularly scheduled office hours and if prior appointment is required**

Course Description

- ☒ **Reasonably detailed overview of the course (course description should match on syllabus and eCATS form)**
- ☒ **Prerequisites, if any (should match on syllabus and eCATS form)**
- ☒ **Student learning outcomes**
- ☐ Course goals/objectives
- ☒ Required materials (textbook, lab materials, etc.)
- ☐ Outline of the content, which must conform to the Bulletin description
- ☐ **Summary description of the components that contribute to the determination of course grade**
- ☒ **Tentative course schedule that clarifies topics, specifies assignment due dates, examination date(s)**
- ☐ **Final examination information: date, time, duration and location**
- ☒ **For 100-, 200-, 300-, 400-, 400G- and 500-level courses, numerical grading scale and relationship to letter grades for undergraduate students**
- ☐ **For 400G-, 500-, 600- and 700-level courses, numerical grading scale and relationship to letter grades for graduate students. (Graduate students cannot receive a "D" grade.)**
- ☒ **Relative value given to each activity in the calculation of course grades (Midterm=30%; Term Project=20%, etc.)**
- ☒ **Note that undergraduate students will be provided with a Midterm Evaluation (by the midterm date) of course performance based on criteria in syllabus**
- ☒ **Policy on academic accommodations due to disability. Standard language is below:**

  If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Course Policies

- ☒ **Attendance**
- ☒ **Excused absences**
- ☐ **Make-up opportunities**
- ☒ Verification of absences
- ☐ Submission of assignments
- ☒ **Academic integrity, cheating & plagiarism**
- ☐ Classroom behavior, decorum and civility
- ☐ Professional preparations
- ☐ Group work & student collaboration

UGE Review ( )

Revise Grading Criteria policy to allow students with excused absences the opportunity to make up missed graded work

Revise Grading Scale ("A" should include ">"

Committee Review ( )

Comments

FOR 356 Forest Soils and Hydrology

Spring 2016 (1-credit)

Instructors: Dr. Chris Barton
203 Thomas Poe Cooper Building
Phone: 257-2099
Email: barton@uky.edu
Office Hours: Available after class and by appointment.

Dr. Claudia Cotton
USDA Forest Service
Daniel Boone National Forest
1700 Bypass Road
Winchester, KY 40319
Phone: (859) 745-3115
Email: ccotton@fs.fed.us
Office Hours: Available after class and by appointment.

Class Time: 8:00-5:00, February and March, 2016. The specific meeting week is subject to the schedule of the Spring Field Semester.

Location: Robinson Forest

Required Text: None. All required reading assignments will be distributed by Dr. Barton.

Prerequisites: FOR 219, FOR 250, FOR 330, FOR 340, FOR 350, FOR 370, and PLS 366, or consent of the field semester coordinator.

Course Description from Course Bulletin: Students will learn to assess the physical environment of forested ecosystems by examining soil-plant-water relationships across a variety of landscape settings.

Course Overview: Students will learn to assess the physical environment of forested ecosystems by examining soil-plant-water relationships across a variety of landscape settings. This is a hands-on course that will be primarily taught in a field setting under sometimes harsh climatic conditions.

Student Learning Outcomes:
After completing this course, students will be able to:

- Describe the interdependence of natural resources in the forested landscape of eastern Kentucky.
- Explain how natural resources and land use/disturbance history combine to create the

forested site quality we see before us.

- Read the forested landscape and use those interpretations to guide our management decisions.
- Use proper field techniques for studying soil, water and plant attributes of a forest.

***Tentative Course Schedule** (dates may be switched pending site conditions)*:
The exercises are largely field oriented and participation is essential. You are responsible for being at all classes which normally run from 8:00 am – 5:00 pm but can run into the wee hours of the morning on some occasions. We will be in the water quite a bit, so be prepared to get wet and dirty. **Students are advised to bring rain gear, waterproof boots, calculator, writing material, and a binder for collecting handout material.*

The week will cover:

Day 1 - Influence of geography, topography and disturbance on soils and forest stands. Soil morphology

A several mile hike to observe the effects of soils, geology, topography, and disturbance on forested site quality, from classic cove to scrappy ridge. Topics covered include: Water and nutrient availability, soil texture, alluvium/colluvium/residuum soil, soil horizons, organic matter, soil productivity. Geology of eastern Kentucky landscapes. Topographic parameters important in the landscape (aspect, slope gradient, slope position). Typical disturbances in Kentucky forests (prescribed burning, wildfires, ice storms, logging, erosion).

You will need to bring your lunch, hardhat, camera, water, rain gear, and warm clothes/layers. Be aware of hazards on the hikes such as footing, slippery trails; large icicles hanging off of cliffline; icy sections of steps and trails; snags – look up and be situationally aware; and cliff line – could also be covered with ice. Your written assignment will be distributed at the beginning of the hike. The assignment is due on Day 5, (Friday) at 5 pm.

Day 2 Water Quality and Hydrology

As a group of entry level Hydrologist working for the Kentucky Division of Water, you have been asked to assess the water quality and quantity of streams in and adjacent to UK's Robinson Forest. You will specifically study the following watersheds in the study area: Falling Rock, Clemons Fork, Buckhorn Creek and Troublesome Creek. Each group will establish baseline conditions within the watersheds and determine whether or not the system is impaired. In addition, you are to evaluate how land management procedures within the watersheds have contributed to the results obtained. Finally, you will be asked to make some recommendations on how to better manage these areas, and/or make suggestions that would improve the current conditions from an ecological, environmental, social or economic standpoint.

In general, this project is intended to give us hands-on experience with standard methodology for the examination of hydrology and water quality in fluvial systems. We will observe and practice the techniques used by field hydrologists to measure flow; collect and analyze water samples; describe stream morphological characteristics; and interpret data. The exercise is technical in terms of how you perform the field practices and how the results differ between methods used and sites examined. However, interpretation of the results is speculative and should reflect each student's opinion, which will likely differ amongst the group based upon their collective interpretation of the inherent value in watershed function.

Day 3 Forestry BMPs and Aquatic Ecology

The State of Kentucky has established forestry best management practices (BMPs) that are designed to reduce nonpoint source pollution (NPSP). When asked whether KY's BMPs are sufficient for protecting water resources, our answer has been "we think so." The reason for the wishy-washy response is two-fold: 1) few studies have been performed to examine specific BMP guidelines and test their effectiveness, and 2) recommendations for many BMPs that are employed in eastern Kentucky were developed from information gathered outside the region.

A study was initiated in Kentucky to evaluate the effectiveness of different BMP recommendations at Robinson Forest. Three watersheds were harvested using with one of three BMP treatments. Treatment 1 was based on the current Kentucky SMZ guidelines and included a 55 ft perennial streamside management zone (SMZ) with 50% overstory retention and a 25 ft intermittent SMZ with no overstory retention requirement. Treatment 2 maintains the 55 ft perennial SMZ but requires 100% canopy retention and 25% canopy retention in the 25 ft intermittent SMZ. In addition, improved crossings were used in ephemeral stream crossings and the nearest channel bank tree was retained. Treatment 3 increased the perennial SMZ width to 110 ft with 100% canopy retention and the intermittent SMZ width to 55 ft with 25% canopy retention and included a 25 ft SMZ around ephemeral streams. The nearest channel bank tree was also retained and improved stream crossings were used in the ephemeral streams. For Treatment 1, ephemeral streams were crossed at right angles using unimproved crossings (fords). Improved crossings in Treatments 2 and 3 included portable wooden skidder bridges, steel pipes/culverts, and PVC pipe bundles. An unharvested watershed is used as a control.

Your job will be to determine whether differences in hydrology, water quality, stream biota and climate exist between the differing watersheds and differing BMPs. You will also compare harvested watersheds to an unharvested control to see what influence timber removal may have had on these watershed functions. The three harvested watershed you will examine are Shelly North (27 ha, current KY BMP), Shelly South (33 ha, 55' width 100% retention), Shelly West (72 ha, 110' width, 100% retention) and Little Millseat (79 ha, control).

1) Measure and compare stream discharge (cubic feet per second/ha) from the four watersheds.
2) Measure and compare pH, EC, DO and turbidity from the four watersheds.
3) Compare soil moisture at 10-cm depths from the four watersheds using moisture probes located within the SMZ (10-feet from bank).
4) Using kick nets, sample stream macroinvertebrates using timed sampling intervals. Inverts will be identified by taxon and % EPT, Biotic Index, and Pollution Tolerance will be calculated.

Using all this information, describe major differences between SMZ treatments and the control. Which SMZ treatment would you recommend, why?

Day 4 Mining, Reclamation and Water Quality

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) requires the restoration of post-mining land-use capability to a level "equal to or better than" that which preceded mining. The majority of coal-mined lands in Appalachia were forested prior to mining, however, most mined lands are reclaimed to pasture. One reason for this change in land-use is that the reclamation practices used to achieve a post-mining landscape of "approximate original contour" to the pre-mined topography of the site, per SMCRA, tend to inhibit tree growth. Impediments to forest growth on these sites include: 1) excessive compaction of the spoil, 2) unsuitable or sometimes toxic rooting material, and 3) competition for nutrients and water by aggressive and often invasive herbaceous species that are planted to establish ground cover. Other problems associated with the reforestation of surface mines include the lack of careful selection of a spoil medium for optimization of tree growth, selection of tree species that are not suited to site conditions, and improper tree planting techniques. Realizing the significance of these problems, enhanced efforts to address reforestation shortcomings were examined by regulatory, mining and research groups alike to ensure that forests are restored to the region. As a result, a five-step system to reforest coal mined land called the Forestry Reclamation Approach (FRA) was developed from recommendations generated by surface mine reclamation research over the past eighty years. The steps of FRA are: (1) create a suitable rooting medium for good tree growth that is no less than 1.2 m deep and comprised of topsoil, weathered sandstone, and/or the best available material; (2) loosely grade the topsoil or topsoil substitutes placed on the surface to create a non-compacted growth medium; (3) use native and non-competitive ground covers that are compatible with growing trees; (4) plant two types of trees – early succession species for wildlife and soil stability, and commercially valuable crop trees; and, (5) use proper tree planting techniques.

Step 1 of the FRA is critical as the properties of mine spoil materials used to create a surface growth medium will influence both the survival and growth of planted trees and the "natural succession" of native vegetation that is essential to ecosystem development. The "best available" growth medium will depend on the local conditions. While topsoil is a valuable resource for reclamation, its availability is limited and selected, alternate growth media are used to support productive forestland. Research in

the Appalachian coal region suggests that mine spoils (geologic material below the topsoil) are capable of supporting productive forests when they have low soluble salts (low electrical conductivity); low bulk density; high rooting volume (a function of depth to restrictive layer and coarse-fragment content); replacement topsoil with an adequate seed bank; moderate water holding capacity; and moderately acid pHs. The placement and type of overburden during reclamation is critical due to the effects of compaction and chemical properties, where uncompacted, oxidized (brown) sandstone often provides the best growth performance. These weathered sandstone materials and/or native topsoil materials may not be available or economically retrievable at a given mine. As a result, some mining operations may prefer to use un-weathered overburden materials (i.e., materials retrieved even further below the surface such as gray sandstones or shales) for mine soil construction. The properties of these oxidized materials may not be as conducive to reforestation as brown sandstone due to their high electrical conductivity, alkaline pH, or high coarse fragment content.

Step 2 of the FRA is similarly critical as over compaction of the spoil (regardless of its chemical makeup) can be deleterious to tree growth and survival. Compacted spoil limits root penetration, water infiltration and aeration. Moreover, compacted spoil leads to increased runoff which can affect down gradient water resources.

For this assignment we will visit two mined lands and examine steps 1 and 2 of the FRA.

Bent Mountain

At the Bent Mountain surface mine in Pike Co. KY there is an experimental site that was developed to examine the influence of spoil type on tree growth, and natural regeneration. The site was established in 2007 and contains 12 half-acre plots with four spoil types: 1) brown weathered sandstone (B#), 2) gray unweathered sandstone (G#), 3) shale (S#) and 4) mixed sandstones and shale (M#). Each plot was planted with native hardwood species and white pine. No ground cover seed was applied on the site.

At this site you will:

1. Measure height (cm) and ground –line diameter (mm) of 6 white (or chestnut) oak and ash trees from each of the 12 plots.
2. Estimate % ground cover in two randomly selected 2 x 2 meter plots in each of the 12 plots.
3. Collect a soil sample from the upper 10-cm of each plot and measure soil pH and EC (electrical conductivity) in a 1:1 soil/deionized water slurry.

Little Elk

We will also go to the Little Elk mine in Perry Co. KY. On that site an experiment was performed to examine the influence of spoil compaction on tree growth. There are

three treatments we will examine: 1) compacted, 2) strike-off and 3) uncompacted. Each site was planted in 1997 with native hardwoods, royal paulownia and white pine.

At this site you will:

1. Measure height (cm) and ground –line diameter (mm) of 6 white pine, white oak and ash trees from each treatment.
2. Measure penetration (psi) at four randomly selected locations from each treatment.
3. Measure soil moisture at each treatment.

From the two sites you will graphically compare tree growth between soil treatments. At Bent Mountain you will determine if there is a chemical difference between soils that may have influenced the observed results in tree growth and ground cover. At Little Elk you will determine if there is a physical difference in soils that may have influenced tree growth. Based upon both study sites, what recommendations would you make to a mining company that is interested in reforestation?

Day 5 Open for Work on Reports

All four reports are due via email by 5pm. Dr. Barton will be available all day for help.

Grading Criteria

Students will be required to complete several field exercises and writing assignments designed for each specific topic. Grades for each field exercise will reflect student competence and level of participation and be assigned by specific topic. A zero will be assigned for each day and/or assignment missed. All four reports are due via email by 5pm on Day 5 (Friday). Dr. Barton will be available all day on Day 5 (Friday) for help.

There will be four field activities with accompanying writing assignments. Each field activity/writing assignment will be 25% of your grade.

Field activity/writing assignment 1 = 25%
Field activity/writing assignment 2 = 25%
Field activity/writing assignment 3 = 25%
Field activity/writing assignment 4 = 25%
100%

The following grading scale will be used:

Grading Scale
A: = 89.46% and above
B: = 79.46% and < 89.45%
C: = 69.46% and < 79.45%
D: = 59.46% and < 69.45%
E: < 59.45%

Highest grade possible if absent: **1 day = B, 2 days=C, 3 days=D, 4 days=E**

Late problem sets or papers will be deducted by **5% *each day*** unless ***prior*** arrangements have been made with the instructor.

Mid-term Grade
Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (http://www.uky.edu/Registrar/AcademicCalendar.htm)

There will be no final exam for this course.

Excused Absences
Students need to notify the professor of absences prior to class when possible. The University defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance".

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Two weeks prior to the absence is reasonable, but should not be given any later. Information regarding major religious holidays may be obtained through the Ombud (859-257-3737, http://www.uky.edu/Ombud/ForStudents_ExcusedAbsences.php.

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Makeup Policy for Assignments
Per Senate Rule 5.2.4.2, students missing any graded work due to an excused absence are responsible: for informing the Instructor of Record about their excused absence within one week following the period of the excused absence (except where prior notification is required); and for making up the missed work. The professor must give the student an opportunity to make up the work and/or the exams missed due to an excused absence, and shall do so, if feasible, during the semester in which the absence occurred.

Verification of Absences

Students will be asked to verify their absences in order for them to be considered excused. Students must provide "appropriate verification" when claiming an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Plagiarism

Is not tolerated!

Part II of Student Rights and Responsibilities (6.3.1; online at http://www.uky.edu/StudentAffairs/Code/part2.html) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self–expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be published article, chapter of a book, a paper from a friend or some file, or whatever. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone.

When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Plagiarism also includes making simple changes while leaving the organization, content and phraseology intact. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain.

Accommodations Due to Disability

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (DRC). The DRC coordinates campus disability services available to students with disabilities. It is located on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407. You can reach them via phone at (859) 257-2754 and via email at drc@uky.edu. Their web address is http://www.uky.edu/StudentAffairs/DisabilityResourceCenter/.

Emergency Situations

If an emergency arises in this classroom, building or vicinity, your instructor will advise you of actions to follow to enhance your safety. If a situation requires emergency shelter (i.e., during a severe weather event), the nearest shelter location in the T.P. Cooper Building is the basement. If building evacuation occurs (i.e., fire alarm), follow posted evacuation routes and assemble on the sidewalk outside the front of the building so the instructor can help ensure their students have evacuated the building safely and they are not hindering emergency personnel access to the building. If you may require assistance during an emergency, notify the instructor at the beginning of the semester. In order to prepare for emergencies while on campus please continue to the below links for detailed emergency response guidelines: the UK Division of Crisis Management & Preparedness website (http://www.uky.edu/EM/emergency-response-guide.html) and the College of Agriculture, Food and Environment (http://www.ca.uky.edu/). To receive emergency messages, sign up for UK Alert (http://www.uky.edu/EM/UKAlert). Always turn cellular phones to silent mode when entering the classroom. If you observe or receive an emergency alert, immediately and calmly inform your instructor.

Spring Field Semester - Students will be given an emergency procedures packet at the beginning of the Spring Field Semester. This packet covers the general procedures and emergencies procedures for both on and off campus during the Spring Field Semester.