

## Syllabus

### Course Information

Course title	Coal in the Heart of Appalachian Life
Course number	Scie1199-08 and Scie1199-09
Course discipline	Natural Sciences
Course description	You will explore the science underlying the formation, extraction and utilization of coal within the context of coal-based societal issues and engage in student-centered activities. Topics include the formation of different types of coal, how and why coal is such an excellent source of energy, acid mine drainage, environmental pollution, human health implications (black lung disease), and the future of new coal technologies. You will investigate the important, intractable social problems of nonrenewable resource depletion, mountaintop removal – valley fills and public health. You will be challenged to examine your role as a citizen in finding equitable solutions to these issues.
Location	TTh am: HHH106 and TTh pm: HHH102
Meeting day(s)	Tuesday and Thursdays
Meeting time(s)	AM section: 9:30 am - 11:30 am; PM section: 1:30 pm - 3:30 pm

### Textbooks

Required reading	<i>Coal: A Memoir and Critique</i> , D. Lockard, The University Press of Virginia, 1998, 0-8139-1784-0
Required reading	<i>Mountain State Coal (CD-ROM)</i> , WV Geological and Economic Survey, 2003

### Course Requirements

WebCT	WebCT will be used extensively in this course (gradebook, calendar, email, discussion board, assignments, content, syllabus.) You will need to check it each day in order to stay current and be sure of receiving all course assignments and announcements.
Hardware/Software	Regular access to a computer with web browsing capabilities (e.g., in one of the computer labs at school, in a library or at home) is a requirement for this course. In addition, you need to have the current version of Acrobat Reader ( <a href="#">free download</a> ). The computers in the computer labs on campus are sufficient. Internet Explorer (web browsers to be downloaded for free can be found <a href="#">here</a> ) may prove to be a more robust browser than Netscape for some of the documents posted for this course.

## Policies/Procedures

Introduction      **Attendance Policy:** Class participation and attendance are a considerable part of your grade and should not be taken lightly. Since many of the activities are turned in by the end of class and cannot be made up, missing class is not advised. If you are not able to attend class, you should email or call the instructor as soon as possible (preferably prior to class). Excessive absences will ultimately result in a lower grade for the course since a grade of "0" will result in assignments not submitted. Class work missed cannot be made-up for credit.

**Learning Disability Policy:**  
If you are a student who has a learning disability (as identified by Fairmont State College) you need to make an appointment with one of us within the first two weeks of class so that any necessary accommodations needed may be discussed.

**Late work:**  
Deadlines are unfortunately part of life and you are expected to submit your work by the date due. Giving you extra time to complete an assignment provides an unfair advantage to you over colleagues by providing you with additional time to perfect your work. Late work submitted, therefore, will be assessed a "late fee" or 10% of the assignment points for every day it is late. No work will be accepted for credit after the NEXT CLASS PERIOD.

### Information for Instructor 1

Name                      Andreas Baur  
Email                      Please use the email function in WebCT  
Office location        HHH 218  
Office hours            M 4 - 5 pm, TTh 3:30 - 4:30 pm, WF 10 - 11 am  
Phone                    304-367-4127

### Information for Instructor 2

Name                      Deb Hemler  
Email                      Please use the email function in WebCT  
Office location        HHH 213  
Office hours            MWF 11 am - 12 pm, TTh 11:30 am - 12:30 pm  
Phone                    304-367-4393

### Information for Instructor 3

Name                      Galen Hansen  
Email                      ghansen@mail.fscwv.edu

Office location	HHH 117
Office hours	MWF: 10:00 a.m. TR: 12:00 p.m.
Phone	304-367-4176

#### Information for Instructor 4

Name	Phil Mason
Email	Please use email function in WebCT
Office location	HHH 328A, Technology 358C
Office hours	M W F: 8:30-9:30 TR: 3:30-4:30
Phone	304-367-4642, 304-367-4156

#### Course Goals/Objectives

Course Goals	<ul style="list-style-type: none"> <li>• Increase understanding of the scientific concepts and content related to coal</li> <li>• Enhance comprehension of and ability to apply the process of scientific discovery</li> <li>• Develop appreciation of the different scientific disciplines' perspectives on the science of coal</li> <li>• Develop improved abilities in data acquisition, interpretation and application</li> <li>• Learn to think about relationships and issues in more critical and analytical manner</li> <li>• Improve communication skills</li> <li>• Investigate and better appreciation the relationships between science and societal issues</li> <li>• Learn more effectively through your participation in a formalized Learning Community</li> </ul>
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A list of learner outcomes for this course can be found [here \(in html format\)](#) or [here \(in pdf format\)](#) .

#### Assessment/Grading

You will engage in a variety of activities designed to focus your efforts in student-centered learning. In-class and lab activities, writing assignments, group work, homework, WebCT discussions, group projects and content assessments will be important components in your learning. Grades will be based upon a 10 point scale.

Assignment Distribution

In-Class Activities/Quizzes 20%

Homework 15%

Tests/Quizzes 40%

WebCT Discussion 10%

Capstone Project 15%

## Course Outline

A tentative course outline for the course and its modular structure can be found [here \(in html format\)](#) or [here \(in pdf format\)](#) .

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## *Coal in the Heart of Appalachian Life* Course Outline

<i>Session</i>	<i>Topic</i>	<i>Content</i>
<b>Introduction</b>		
1	What is Appalachia?	Team Building/Pre-assessment
<b>Coal Formation and Extraction (Geology)</b>		
2	Rocks of WV	Sedimentary Rocks/Stratigraphy
3	How Old is WV	Geologic Time
4	Coal Formation	Northern/Southern Coals & Fossils
5	“Mountains” in WV	Tectonics and Erosion
6	Mining Coal in WV	Deep, Surface, and Mountain Top
7	Economic Geology	Coal Extraction
8	Assessment	
	<i>Civic Engagement</i>	<i>Coal as Nonrenewable Resource</i>
<b>Coal and the Environment</b>		
9	Mine Safety	Combustion/Explosion
10	Methane –an Alkane	Exothermic/Endothermic Processes
11	Acid Mine Drainage	pH, Acidity, Molecular view
12	What is Coal –Part I	Kinds of Matter
13	What is Coal –Part II	Elemental Analysis
14	Carbon and Structures	Molecular Models and Properties
15	Assessment	
	<i>Civic Engagement</i>	<i>Impacts of Mining and Burning Coal</i>
<b>Coal as Energy (Physics)</b>		
16	Energy in Systems and Bonds	Energy
17	Are all Coals the Same?	BTUs of Coal Grades
18	Coal as a Fossil Fuel	Oil and Gas in WV
19	Energy Transformations	Force, Work
20	Coal-fired Power plants	Electricity
21	Alternative Energy Sources in WV	Solar, Wind, Geothermal, Nuclear
22	Assessment	
	<i>Civic Engagement</i>	<i>Alternative Energy Sources</i>
<b>Reclamation of Ecosystems (Biology)</b>		
23	Living Systems	Ecosystems & Energy
24	Plant processes	Photosynthesis-making more wood
25	Surface Mining Reclamation	Wetlands, woodlands, grasslands
26	Mountain Top Removal/Valley Fill	Watershed Issues
27	Health Issues-Black Lung, Black Damp	Union Success/Failure –Science
28	TBA	TBA

29    Assessment  
      *Civic Engagement*  
***Final    Capstone Activity***

*Health and Reclamation Issues*  
***Group Poster Presentations***