

University-Wide Undergraduate Curriculum Committee

PART IV. DESCRIPTION OF CURRICULUM CHANGE

1. Catalog description

3 lecture hours
0 lab hours
(3c-01-3sh)

Prerequisites: CS121 Computer Concepts I or CS101 Freshman Computer Concepts I

2 Course Syllabus

I CATALOG DESCRIPTION

GS 221 Physical Resources of the Earth

3c-01-3sh

Prerequisite: ~~GS 121 General Geology I or GS 101 Earth Science~~
Geology/Oceanography

Introduction to mineral, energy, and water resources of the Earth; genesis of ore deposits; exploration, exploitation, and utilization of resources; impact of exploitation of resources on the environment and on humankind. Field trips which may occur on weekends.

II. COURSE OBJECTIVES

1. Understand the geological processes responsible for formation of mineral, energy, and water resources of the Earth. Relate the different kinds of physical resources to their plate tectonic setting and their geological evolution. Given the large scale geologic setting, identify possible areas worthy of exploration for mineral, energy, or water resources. Evaluate among the different models of ore genesis.

2. Describe the history of some important ore deposits as resources and make
some predictions regarding their future

Energy resources. "fossil fuels", nuclear power, alternatives for future energy supplies
 Ores that are abundant: Metals such as iron, manganese, aluminum, titanium.

base metals (lead, zinc, and so on), precious stones (diamond, ruby, and so on)

Agricultural minerals: nitrogen, phosphorus, and so on

Construction materials: sand, gravel, cement, and so on

Water resources

Soil resources

Exploitation of physical resources and impact on the environment (1 week)

Exploitation of physical resources and impact on humankind (1 week)

Two guest lecturers:

Dr. Miriam Chaiken, Sociology-Anthropology, IUP: a case history of the US government and exploitation of mineral resources on a Native American Reservation in Arizona (1/3 week)

Ms. Eileen Cooper, History, IUP: a history of coal mining in Pennsylvania. Ms. Cooper was instrumental in establishing the Coal Heritage Center in the Johnstown Flood Museum. (1/3 week)

(1/3 week, i.e. one class period will be the midterm exam)

Two field trips which may occur on weekends:

1. Coal strip mine in western Pennsylvania

period. The research paper will be graded on selection of the appropriate amount and kind of factual material, critical evaluation of those data, ability to use those data to make a point, and

Required reading:

Craig, J.R., Vaughan, D.J., Skinner, B.J., 1988, Resources of the Earth: Prentice-Hall, 395 pp.

McPhee, J., 1980, Basin and Range

McPhee, J., 1982, Annals of the Former World: Suspect Terranes: 3 part series in the New Yorker, September 13, 20, 27, 1982.

Cooper, Eileen, 1982, Rochester and Pittsburgh Coal Company. The First Hundred Years, pamphlet.

Other readings in journals or newspapers will be assigned in lecture

Required viewing (videocassettes): (viewed in class or as homework assignments)

Broken Rainbow

The Open University Press, 80 pp

Peters, W.C., 1978. Exploration and Mining Geology: John Wiley and Sons, 696 pp

Rickard, T.A., 1974. Man and Metals. Arno Press, 1068 pp.

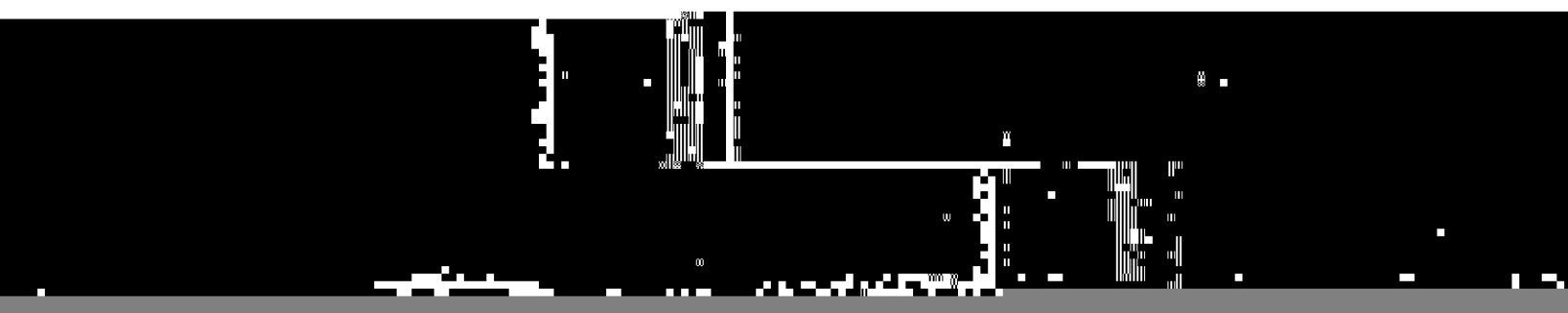
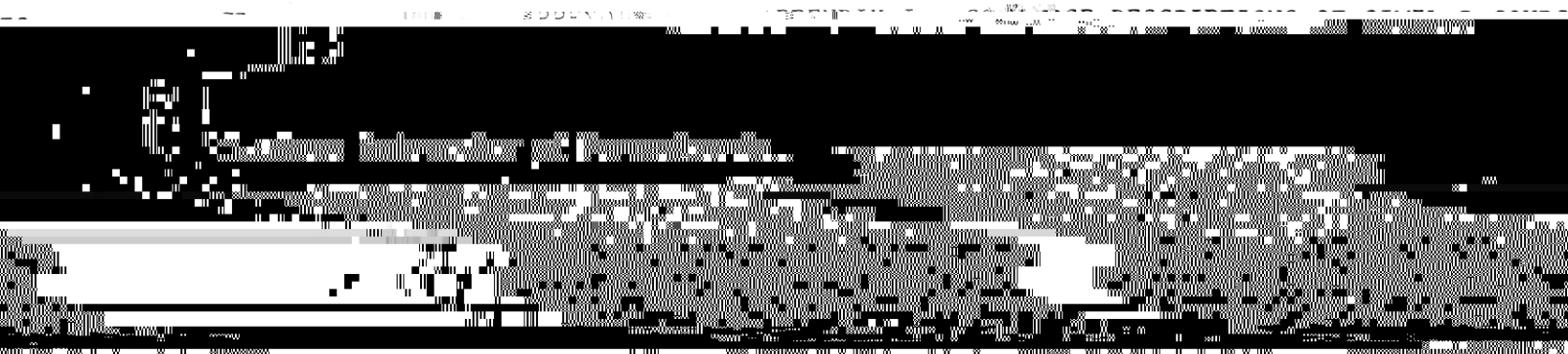
Simon, I.L. and Kahn, H., eds., 1984, The Resourceful Earth: Blackwell, 592 pp

Warren, K., 1973. Mineral Resources: John Wiley, 272 pp

3. Course analysis questionnaire

Section A- Details of the Course

chemical processes. In addition to dealing with mineral resources, this covers the



Indiana. Pennsylvania 15705

Date: March 8, 1989

Subject: GS 221 Physical Resources of The Earth

To: Dr. Darlene Richardson
Geoscience Department

From: Bob Begg^{SB}/Chairperson
Department of Geography & Regional Planning

While considerable overlap exists in the content of GS 221 and several of our courses your approach to the topics differs substantially. The greatest overlap is with GE