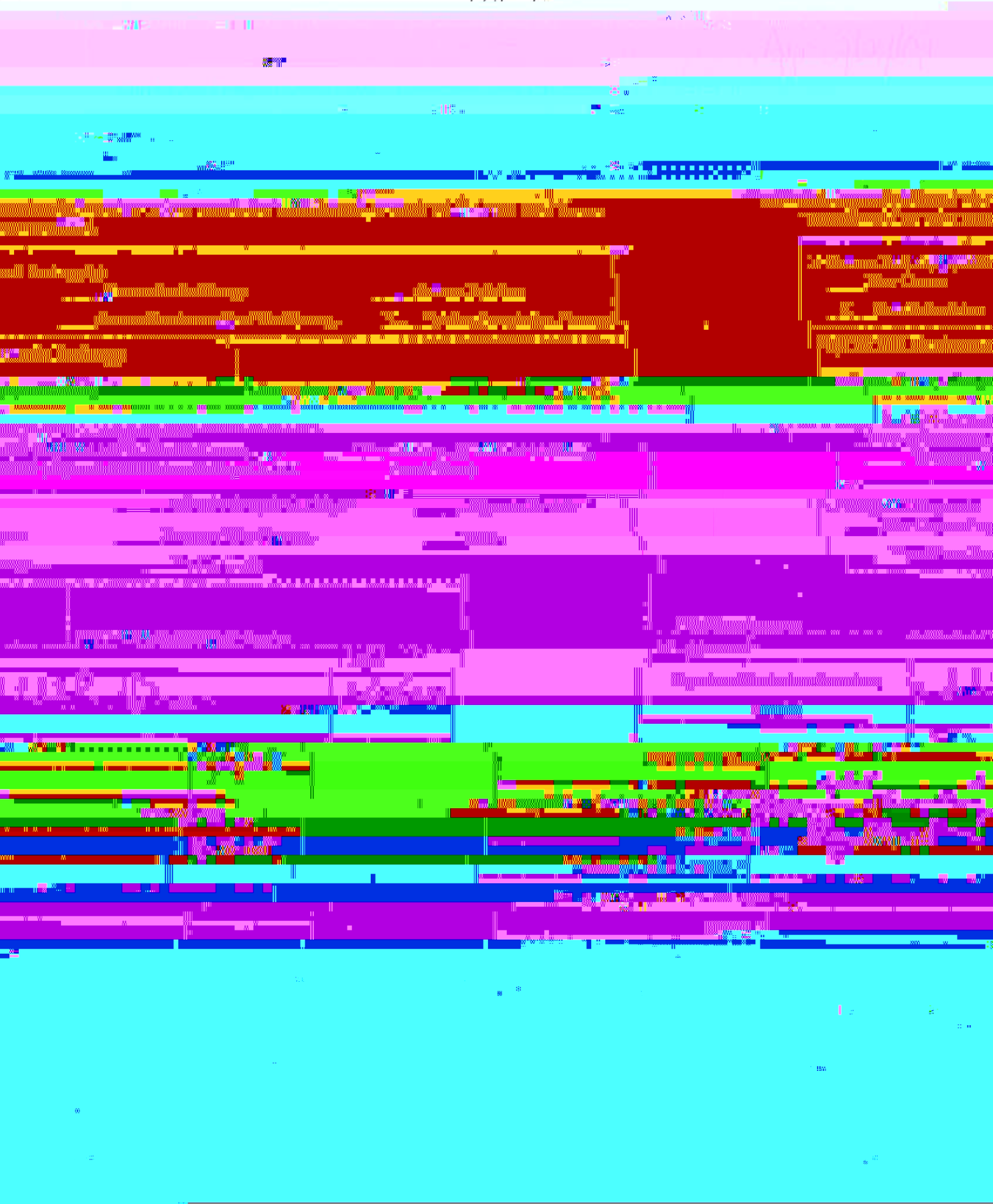


M8-7A



PART II: Description of Curricular Change

1 New Syllabus of Record

I. Catalog Description

GEOS 310 Environmental Geology

3c-3l-4cr

Prerequisite: Grade of C or better in GEOS 202 and GEOS 203

The study of human interactions with the Earth from a geological perspective. Emphasis is placed on the scientific concepts necessary to understand these interactions, including groundwater flow, soil formation and destruction, waste disposal, geologic hazards, stream hydrology, climate change, and natural resources. Contemporary environmental issues are explored through primary scientific literature and news media. Includes field trips which may occur on weekends.

II. Course Objectives

At the end of this course, students will be able to:

- determine the configuration of a water table aquifer on the basis of head data.
- summarize and evaluate the interactions between surface water and ground water in both confined and unconfined aquifers.
- recognize and evaluate the major types of threats associated with volcanism and seismicity.
- ~~explain how crustal surface velocities relate to volcanic hazards and to seismic hazards at plate~~

2. Soils
3. Fossil fuels
4. Alternative energy sources

Part D (4 academic hours): Waste Disposal

1. Solid and liquid waste
2. Radioactive waste

Part E (5 academic hours): Environmental Policy

1. Environmental law
2. Land-use planning
3. Engineering geology

Final Exam (during final exam period)

Laboratory Exercises (3 academic hours each)

- Week 1: Plate motions
- Week 2: Seismic hazards
- Week 3: Streams and floods
- Week 4: Mass wasting
- Week 5: Groundwater
- Week 6: Laboratory midterm exam
- Week 7: Climate change

~~Week 8: Water pollution~~

Week 9: Wastewater treatment

~~Week 10: Hazardous waste~~

Week 11: Power generation

Week 12: Selenium contamination case study

Week 13: Acid mine drainage

Week 14: Laboratory final exam

IV. Evaluation Methods

Each component of the course will contribute to the final grade as follows:

Lecture quizzes	20%
Lecture exam 1	20%
Lecture final exam	20%
Laboratory exercises	20%
Laboratory final exam	20%

V. Example Grade Scale:

Final grades will be assigned based on the following: A 90-100%, B 80-89%, C 70-79%, D 60-69%, F 50-59%, G 40-49%, H 30-39%, I 20-29%, J 10-19%, K 0-9%

The required textbook for this course is:

Montgomery, Carla W. *Environmental Geology 7th edition*. New York: McGraw Hill, 2006.

The required laboratory manual for this course is :

Freeman, Tom. *Environmental Geology Laboratory*. New York: John Wiley & Sons, Inc., 2004

VIII. Special Resource Requirements

Students will be required to have the following resources:

Geologic Field Notebook, protractor and ruler.

IX. Bibliography

Keller, E. A., Introduction to Environmental Geology, 3rd Edition, 2005, (Pearson Education, Inc.)

Pipkin, B. W., D. D. Trent, and Richard Hazlett, 2005, Geology and the Environment, 4th Edition (Brooks/Cole Publishing)

Online Resources:

<http://serc.carleton.edu/NAGTWorkshops/climatechange/index.html> (topic: climate change)

<http://serc.carleton.edu/NAGTWorkshops/earthquakes/index.html> (topic: earthquakes & human health)

4. Old Syllabus of Record

There is no syllabus of record; the following is a 1993 syllabus of instruction.

GS 310 Environmental Geology

Fall 1993

Joseph C. Clark

Lecture: TR 1:15-2:15

117 Walsh Hall

Lab: R 2:15-5:15

Phone: 357-2379

Lecture: Walsh 104

Office Hours: T 9:15-11:45

Lab: Walsh 106

Texts:

Keller, E.A., 1992, Environmental Geology, 6th ed.

Wilshusen, J.P., 1979, Geologic Hazards in Pennsylvania

Course Outline: attached

Course Assessment:

A mid-term exam and the final exam, which consist of short essay-type questions, will constitute 50% of the grade. There are no unannounced quizzes.

Laboratory exercises, including field trip reports, will make up 30% of the grade. For some exercises you will have one week for others two weeks. Exercises are not acceptable after graded reports are returned.

