GEOL 406 Senior Seminar in Earth Science: Earth Science Policy
Spring 2005
T,R 3:00-4:15, David King 2074

Prerequisites: GEOL 101, 102, completion of 90 credit hours, completion or concurrent enrollment in all other required general education courses

Instructors. Dr. Rick Diecchio, Professor of Geology
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Dr. Robert Clark, Professor of Government and Politics
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Date    Topic
25 Jan   Introduction
27 Jan   Environmental ethics - Dr. Roger Paden
          • Rachels, J., A short introduction to moral philosophy.
1 Feb    Paradigm for analyses of issues
          • Clark, R., 2002, Global Awareness, p. 36-40.
3 Feb    Paradigm for analyses of issues - Systems
          • Clark, R., 2002, Global Awareness, Ch. 3
          • Peet, J., 1992, Energy and the Ecological Economics of Sustainability, Ch. 5
8 Feb    Politics of scientific issues – issue networks, symbolic & tangible politics
          • Beder, S., Agenda setting for environmental protection policies at http://www.uow.edu.au/arts/sts/beder/ecopolitics.html
10 Feb   Politics of scientific issues – private & public goods, private property rights
          • http://www.law.georgetown.edu/gelpi click on “The Takings Issue” and read various links including “Introduction” and Rypkema’s presentation on “Takings”.
15 Feb   Environmental law – Dr. Grant Reynolds
17 Feb   Issues networks – student presentations
22 Feb   Environmental Law – Dr. Grant Reynolds
          • handout: Environmental Law and the Legal System
24 Feb   snow day – school closed
1 Mar  LAND & WATER USE ISSUES: mineral resources and mining  

3 Mar  mineral resources and mining – Dr. Kai Anderson, Staff, Sen Harry Reid (D/NV)

8 Mar  use of water in arid lands  
   • Powell, J.W., 1878, Report on the lands of the arid region of the United States, preface, ch. 1, 2, 3.  
   • Reisner, Marc, 1986, Cadillac Desert, Introduction

10 Mar  Resource and land use economics – Dr. Dawn Parker

Spring break

22 Mar  use of water in arid lands  
   • Hely, A.G., 1969, Lower Colorado River water supply – its magnitude and distribution: USGS Prof. Paper 486-D  

24 Mar  Water Resources - David Berry, Sustainable Water Resources Roundtable

29 Mar  large scale land use planning: Tysons Corner  

31 Mar  large scale land use planning–Steve Griffin, Planning Director, Prince William Co.

5 Apr  ENERGY ISSUES  
   • Peet, J., 1992, Energy and the Ecological Economics of Sustainability, Ch.3  
   • Simil, V., Energy in World History, Ch. 1  
   • Dukes, J., 2003, Burning buried sunshine: human consumption of ancient solar energy: Climate Change, v. 61, p. 31-44  

7 Apr  Energy policy – Dr. David Applegate, U.S. Geological Survey
Student presentations

12 Apr  oil & gas
14 April  oil & gas
19 April  coal
21 April  hydroelectric
26 Apr  geothermal
28 Apr  nuclear
3 May  solar, wind
5 May  tidal, ocean thermal

Paradigm: Each topic of discussion should include consideration of the following items:
1. The natural system and the nature of our scientific understanding.
2. The interaction between humans and the natural system.
3. Legal and political issues related to each topic.
4. Ethical considerations.
5. Synthesis and possible courses of action.

Grading:  
Class participation  40%
Presentations and leading of discussion  30%
Term paper  30%

Students will make presentations and lead discussions for energy issues. Each student will write a term paper based on the topic of her/his presentation.

Websites to monitor, and for sources of information:

American Geological Institute
Geotimes  http://www.geotimes.org/current/
Government Affairs Program  http://www.agiweb.org/gap/index.html