Administrative Details:

Office: Economics 223 (2nd floor, Northwest corner)
Phone: 492-7021
Office Hours: MW 1:30-3:00 and by appointment

Evaluation Methods:
Midterm--35%
Short paper--15% (5-10 pages, a topic of your choosing)
Final--50% (comprehensive) TUESDAY, DECEMBER 17TH, 3:30-6:30

The general topic for the paper should be described, perhaps with a rough outline, on a scrap of paper to be handed in around the time of the first midterm. You should--to make it more fun--try to pick a topic that you are at least somewhat interested in.

Text:
Unfortunately, there is no text of which I am aware that is appropriate for this course. Existing texts tend to either be 1) too low-level and non-economic, or 2) too economic for a course directed at non-economics majors, or 3) too mathematical for either majors or non-majors. The plan, as a consequence, is to rely far more than usual on class notes in combination with a relatively small number of readings which will be available from Kinko's on the Hill.

Course Objectives:

This course deals predominantly with natural resource economics, although environmental economics--also offered for majors and non-majors at Colorado--is closely related. In fact, the environment can fruitfully be thought of as just like any other "renewable" natural resource (e.g. fish or forest stocks).

Almost everybody will come into this course with preconceived notions--some quite vociferously held!--about natural resources. Some of those notions will be shaken during the course of the semester. Some of the more purely economic concepts, despite their clear usefulness, may be viewed as "dry" by some (all?). As a consequence, I will discuss them in the context of a host of interesting and topical applications (e.g. environmental quality, oil crises, forest management, population growth, fishery depletion, endangered species, etc); there is certainly have no shortage of exciting and current topics to discuss during the semester.

In an important sense, the course deals with the question of whether we are getting "better off" or "worse off" over time. Indeed, we shall both start and end our thinking and discussion of natural resources this semester with exactly this issue. In between, we will take up the important contribution that economics can make to discussions of resource use: topics such as property rights, externalities, public goods, uncertainty, market structure, the role of time, and concerns of equity. The full range of topics I hope to have time to discuss are attached, with more details being given about material early in the course; additional information on Topics V, VI, and VII will be made available later.
TOPICS:

I. Introduction: Increasing Scarcity or Increasing Abundance?
   A. Doomsday Scenario (growth, inputs, residuals = disaster)
   B. Brighter Future Scenario (growth, demands for QOL)
   C. Which is right? How do we think about such things?

II. Economics and Natural Resources: The Basics
   A. Supply and Demand in a "perfect world."
      i. perfection (no monopoly, no externalities, OK income dist & knowledge)
      ii. the meaning of "value" (marginal WTP; preference validity issues)
      iii. optimality: MSB = D and MSC = C (right relative amounts always)
      iv. hence, free market outcome would always be desirable, if both the demand
         and the supply curve accurately represented social benefits and social costs.
   B. Market Failure: Ignorance
      i. demand curve "wrong" if people don't know what is good for them
      ii. limited role (media technical advances, "learning by doing," optimal info)
      iii. do policy-makers have "better" knowledge? (government incentives)
      iv. role of economists versus environmental/resource "educators"
   C. Market Failure: Externalities (def)
      i. positive externalities (too little); negative externalities (too much)
      ii. externalities change relative prices, affecting natural resource use
      iii. economists' solution: internalize the externality
      iv. information difficulties--how to know the size of the externality?
   D. Property Rights, Public Goods, and the Free Rider (defs)
      i. why do we have externalities?
      ii. the role of "ownership"--acting as if owned incorporates opportunity cost
      iii. failure of effective property rights and the "tragedy of the commons"
      iv. technological ownership difficulties (air, water, wildlife are public goods)
      v. public goods and the free rider (lighthouse example, illustrating issues)
         1. horizontal versus vertical addition of individual WTPs
         2. equity issues
         3. demand revelation difficulties (the free rider)
         4. controversy at the "optimal" level
      vi. APPLICATION: Is the ivory ban good? (sometimes yes, sometimes no!)

III. Benefit-Cost Analysis: Supply and Demand in Disguise
   A. Comparing the advantages with the disadvantages of actions (B. Franklin letter)
   B. Advantages are "benefits"; disadvantages are "costs"
      i. "benefits" are demands (added up WTPs--equity issues, will it "average out"?)
      ii. "costs" are social opportunity costs--supplies in perfect world
   C. Benefit-Cost analysis is just Supply and Demand applied to cases of market failure
   D. Time and decision-making
      i. things in future not worth as much today
      ii. present values and future values (appropriate discount rate discussion)
   E. Why b-c analysis is hated by those concerned with environment/resource issues
      i. public good nature of env/res means many (about half, at optimum) will think
         b-c is giving them too little of the good--but should they (we?) impose our
         preferences on the rest?
failure to recognize or accept the fact of scarcity (TANSTAAFL)
iii. use of dollars in calculations (false issue, is multi-attribute better?)
iv. belief in biases in the conduct of b-c analysis (benefits downward biased; costs upward biased; researcher bias—but how important in practice?)
v. issues of equity (federal leases to rich, regressive env policy)

IV. The Production and Consumption Process
A. Inputs are transformed into outputs
   i. input scarcity and concerns for resource depletion
   ii. the role of technological advance in resource usage (optic fiber vs copper)
B. Transforming inputs into outputs involves residual discharges into the environment
   i. are the outputs "worth" the damages (externalities again, equity)
   ii. the role of technological advance in environmental control
C. "We have met the enemy, and he is us."
   i. not "evil" producers—economies of scale and home production
   ii. problem at heart is our basic preferences (env/res education revisited)
   iii. optimal resource usage and environmental controls will raise goods costs

V. Non-renewable and Renewable Natural Resources: Overview
A. Non-renewable resources: a taxonomy (handout)
B. Renewable resources
C. Hotelling’s rule
D. Intergenerational equity, sustainability, and notions of "justice"

VI. Natural Resource Categories and Analysis
A. Non-renewable, nonrecyclable energy resources: oil, gas, coal, and uranium
B. Non-renewable, recyclable resources: minerals
C. Renewable, degradable common-property resources: water (some), air, fisheries
D. Renewable, private-property resources: food, forests, water (some), population

VII. Increasing Scarcity or Increasing Abundance: Epilog
A. Generalized resource scarcity: Can we grow?
B. Growth benefits and growth costs: Do we want to grow?
B. Unresolved issues