Course Overview  As a Minister Of The Environment charged to pursue “Sustainable Development”, how would you choose between policy options? What sorts of economic & other things would you want to know as part of deciding?

To help you to answer this (at least for yourself -- even if you do not become Environment Minister), this course will present mostly microeconomic concepts. It will emphasize intuition, logic, and principles more than pure mechanics, while insisting that graphs and simple functions are methods you should own. It is a form of enviro/resource pitch for cost-benefit thinking, distinguished by a focus on temporal distribution (if anything, ‘sustainability’ must include that). Relationships between temporal and spatial distributive concerns and the concepts of ‘efficiency’ are a central theme.

Prerequisites  This course is for undergraduate & Sanford/other graduate students with some experience in economics. Intro Micro in particular (plus any Intermediate Micro or Enviro Econ) will help. Yet none of those courses is necessary.

Readings

Articles (files on Blackboard). In the syllabus, I list some articles we may use +/- or you may choose to read yourself. Note that we may not use each. As the course proceeds, I will drop/add/delay/advance articles, all using Blackboard.

Requirements & Grading

You are asked: to attend class and to participate; and to complete problem sets, a midterm and a cumulative final.

Weights for grading are:
- if midterm grade higher than final (Class&ProblemSets 30%; Midterm 30%; Cumulative Final, 40%)  
- if final grade higher than midterm (Class&ProblemSets 30%; Midterm 15%; Cumulative Final, 55%).

Problem sets provide a chance to learn how to do the types of problems that will appear on both of the exams. All are required (penalty for skipping one to be determined but is larger than one F grade on that problem set). For problem sets (not exams), groups of three or fewer are perfectly acceptable and they are even encouraged. If all students within a group are turning in the same work, as is common, just turn in one copy for the group.

Teaching Assistant  Yeon-Ji Kim (yk53), Sanford MPP, to whom questions (email, likely not phone) go first Office hours are still to be determined (no sections meetings). Mostly will grade and gather course materials.

Duke’s Academic Integrity Policy  (which can be found at http://www.aas.duke.edu/trinity/treqs/integrity.html)  
“Intellectual and academic honesty are at the heart of academic life of any university. It is the responsibility of all members of our academic community to abide by Duke’s strict expectations regarding proper citation of sources. It is also critically important to resist strenuously the temptation to cheat. Acts of academic dishonesty, including plagiarism and cheating, are considered very serious offenses. Students found guilty of plagiarism, cheating, or other forms of academic dishonesty are generally suspended. The academic and nonacademic offenses recognized at Duke and the range of sanctions imposed for them are explained in the Bulletin of Information and Regulations distributed to each incoming student. Please read the bulletin carefully and make sure you understand its content.” Any violation will result, at a minimum, in failing the course.
1) THE GOAL & THE APPROACH  HOW COULD WE CHOOSE BETWEEN POLICIES FOR “S.D.”?

Wed 1/7 & Mon 1/12  Course Overview & An Economic Model For Choosing SD Policy

Banuri, T. "Modernization and its Discontents", Ch.3 in F.A. Marglin and S.A. Marglin, Dominating Knowledge
World Bank, “Technical notes” concerning various particular Basic Indicators of development.

Martin Luther King, Jr. Day Holiday (no class Mon 1/19)

Mon 1/26  “Development” in our model? “Sustainability”? -> Policy Debates

Hartwick, J. "Intergenerational Equity and the Investing of Rents from Exhaustible Resources", AER v.67.n.5
Serageldin, I. / World Bank pages discussing four types of capital (and thus the possibility of substitution).

Mon 2/2 & Mon 2/9  Specific Policy Debates on “E”, Politics, Population, and Growth

Boxes from Elliott book < not on Blackboard yet >.

II) THE TOOLS  ECONOMIC CONCEPTS WITH IMPLICATIONS FOR “S.D.” POLICY CHOICE

(standard microeconomics view = ‘well-functioning markets are the first-choice allocation tools’)

Mon 2/16  Basics of Individual Choice-making and Markets  [may wish to review micro/markets]

Mon 2/23  "Applied Shifting" (prices, preferences, and substitution)

Additional Thinking About Growth
Grossman, G.M. "Pollution and Growth: what do we know?", in Goldin and Winters
Nordhaus, W. "Lethal Model 2: The Limits to Growth Revisited"

Scarcity and Sustainability
"The Unit Cost of Extractive Products", chapter 8 in Harold J. Barnett and Chandler Morse, Scarcity and Growth

Innovation and General Equilibrium
Coxhead, I. and S. Jayasuriya, "Technical Change in Agriculture and Land Degradation ..". Land Economics, v.70
Sethi, R. and E. Somanathan, “The Evolution of Social Norms in Common Property Resource Use”. AER.84 n.4
Goldin, I. and D. Roland-Holst, "Economic policies for sustainable resource use in Morocco", in Goldin and Winters
Burniaux, J. et al., "Carbon abatement, transfers, and energy efficiency", in Goldin and Winters

(Question: can this micro-favored tool of markets, by itself, achieve “sustainable development”?)
Mon 3/2

**Externalities & Inter - national/generational Concerns & Cooperation**
Porter, M.E. and C. van der Linde, “Toward a New Conception of the Environment-Competitiveness Relationship”

**Efficiency vs. Optimality vs. Sustainability**  <intertemporal version of which perhaps after midterm>

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**MIDTERM EXAM (best guess Mon 3/2, maybe 2nd half of class)**
**SPRING BREAK (no classes during Monday 3/9 – Friday 3/13)**

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Mon 3/16 & Mon 3/23  *Explicitly Considering The Future*

**Uncertainty (first by itself) and Irreversibility (combining the two)**

**Discounting (noting recent global-warming-policy discount debate)**
Heal, G. “Climate Economics: a meta-review and some suggestions”
Newell, R. and W. Pizer “Uncertain discount rates in climate policy analysis” *Energy Policy*
Weitzman, M. “On the Environmental Discount Rate”  *JEEM* 1994
Norgaard, R.B. and R.B. Howarth, "Sustainability and Discounting the Future", chapter 7 in *Ecological Economics*
Lind, R. "A Primer on Major Issues Relating to the Discount Rate for Evaluating National Energy Options"

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Notes drawing from Costanza, *Ecological Economics*
Earnhard, D., “Enforcement of Environmental Protection Laws Under Communism and Democracy”.

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**III) COUNTING  IMPLEMENTATION OF “S.D.”, USING NUMBERS TO INDICATE BEST CHOICES**

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Mon 3/30 & Mon 4/6  *From Theory About Utility To Numbers For Policy*
Howarth, R. B. and R.B. Norgaard, “Environmental Valuation under Sustainable Development”. *AER*, v.82.n.2
Harrington, W., A.J. Krupnick, and W.O. Spofford, Jr., "The Economic Losses of a Waterborne Disease Outbreak".
Handout of section from Federal Register, "NOAA: Natural Resource Damage Assessments ---".
"Valuation of Priced and Unpriced Commodities", chapter 6 in *Benefit-Cost Analysis of Air-Pollution Control*.

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**Mon 4/13 (handout)  Policy Numbers: Cost-Benefit Analysis Basics And Examples**
Pearce, D.W. "The Environment: Assessing the social rate of return from investment in temperate zone forestry"
Anderson, D. "Economic Aspects of Afforestation and Soil Conservation Projects"
Fernando, C.S., P.R. Kleindorfer and M. Munasinghe, “Integrated Resource Planning with Environmental Costs..”.
Barbier, E.B., A. Markyanda, and D.W. Pearce, "Environmental sustainability and cost-benefit analyses".

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**Mon 4/20  Policy Numbers: National Accounts Basics and Examples**