When we open our eyes to it, nature is everywhere: Lotus Flower – Hiroshima, Japan

“The idea of wilderness needs no defense. It only needs more defenders.” – Edward Abbey
The Beauty of Nature is Everywhere
Exam I Review For Environmental Issues

Text: Completed readings
Chapters, 1, 2, 4, 6

Articles:
→ “Tragedy of the Commons” — Hardin
→ Environmental Collapse of Easter Island

General Test Related Information

1. Study examples; lecture and text terms; case studies; questions posed during class, major readings concepts.
2. Bring a pencil.
3. Any information printed on the PowerPoint overhead is fair game.
4. Any information from the board may be on the exam.
5. Class discussion questions may be on the exam.
6. Information not printed in the very brief PowerPoint outline, such as the definition of a term or an expanded discussion on a specific topic, may be on the exam.
7. I do ask questions which go beyond definitions - questions that make you link several concepts. “Concept understanding” type questions are commonly asked.
8. There will be 40 questions on the exam. Each question will be worth 1 point. You may elect to take an essay exam. Let me know before the exam date.
9. If you have not been coming to class, I do not expect you to do well, as I intentionally design questions that are couched in class lectures and discussions – study hard and good luck.

Test 1 General Study Guide

1. Environmental Issues Brief Case Studies:
a) Global Distillation Effect - persistent organic pollutants, pressure, biomagnification, policies (Stockholm Convention, ESA)…
b) Lake Ecosystem Destruction in Norway & Sweden - multidiscipline approach to solve environmental issues, low pressure, oligotrophic, eutrophic, pH, legislation…
c) Hanford and Yucca controversies - groundwater, vadose zone, hyporheic, capillary action, toxic storage, Nuclear Waste Policy Act, NIMBY
d) Elk and Wolf Reintroduction - carrying capacity, predator pit, keystone species, aspen ecosystem, increased biodiversity, Surface Mining Control Act
e) Timber Harvest on Public Lands - logging practices and consequences, Multiple Use-Sustained Yield Act, clear, strip and selective cutting practices pros and cons, Roadless Area Conservation Rule, National Forest Management Act
f) Organic Coffee, Sustainable Ecosystems, and Song Birds - shade grown vs. sun grown coffee, agroecosystems, GM coffee, mixed cropping, local foods, GM food controversy…
g) GM Food and Salmon: Trojan gene, biological pollution…
h) Solid Waste and Deposal Methods - Khian Sea and other examples form around the world, pay attention to policies associated with ocean dumping, Basel Convention UNEP, Marine Protection, Research, Sanctuaries Act, Ocean Dumping Ban Act, Syringe Tide, 12 mile and Mud Dump., Incineration, NY Barrel Ban, open dumps, leachate, landfills, throwaway society

2. Population as “the” Environmental Issue - growth & shrinking resources

3. Case study on Easter Island; know facts from overheads & reading: collapse, as metaphor (know examples), ecosystem, desertification, food plants, trees, water, deforestation, invasive species…

4. Population ecology: biotic potential, limiting factors, density dependent

5. Environmental resistances/oscillating growth/logistic growth, examples

6. Population growth curves (J & S curves) & r & K strategy species…

7. Demography: RNI; B & D rates; calculating doubling time, fertility…

8. Population Density: arithmetic & physiological with examples

9. Is limiting population growth a key factor in protecting the global environment?

10. Define different types of “overpopulation” → overpopulation and the environment, resource overpopulation, consumption…

Text: Chapters, 1, 2, 4, 6
Completed readings

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   d) Elk and Wolf Reintroduction - carrying capacity, predator pit, keystone species, aspen ecosystem, increased biodiversity, Surface Mining Control Act
   e) Timber Harvest on Public Lands - logging practices and consequences, Multiple Use-Sustained Yield Act, clear, strip and selective cutting practices pros and cons, Roadless Area Conservation Rule, National Forest Management Act
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   g) GM Food and Salmon: Trojan gene, biological pollution…
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9. Is limiting population growth a key factor in protecting the global environment?

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Exam I Review For Environmental Issues

Terms and Discussion Topics to Know From Your Text:

**Chapter 1** – Central Case Study, Science Behind the Story, Testing Your Comprehension, renewable and non-renewable resources, Thomas Malthus, ecological footprint, scientific method, independent and dependent variables, relativists, universalists, ethical standards, environmental ethic, anthropocentrism, biocentrism, ecocentrism, John Muir, preservation, Gifford Pinchot, Conservation, Aldo Leopold, environmental justice, sustainability, Millennium Ecosystem Assessment; Protocol; From “Testing Your Comprehension” know questions - 2, 5, 6, 7, 8, 9, 10

**Chapter 2** – Central Case Study, Science Behind the Story, Testing Your Comprehension, subsistence, capitalist, centrally planned economies, Adam Smith, classical and neoclassical economics, cost-benefit analysis, ecological economists, steady-state economics, environmental economist, nonmarket values, free rider, land and pollution management, National Environmental Policy Act, Environmental Impact Statement, EPA, UNEP, green taxes; Protocol; From “Testing Your Comprehension” know questions – 1, 2, 3, 6, 7, 8, 9, 10

**Chapter 4** – Central Case Study, Science Behind the Story, Testing Your Comprehension, biodiversity, natural selection, Charles Darwin, Alfred Wallace, artificial selection, species, population, speciation, allopatric speciation, polygenetic trees, mass extinction events, sixth mass extinction, biosphere, ecology, population ecology, community ecology, habitat, niche, specialist, generalist, population distribution and dispersion, age structure and distribution, limiting factors, density dependent and independent; Protocol; From “Testing Your Comprehension” know questions – 3, 5, 6, 7, 8, 9, 10

**Chapter 6** - Central Case Study, Science Behind the Story, Testing Your Comprehension, demographic transition, pre-industrial stage, transitional stage, industrial stage, post-industrial stage, family planning, poverty and population growth, consumption; Protocol; From “Testing Your Comprehension” know questions – 1, 2, 3, 4, 7, 8, 9, 10

Questions on the exam will come directly from your readings. Approximately 15-20% of the exam will be from the readings. The questions could be on a subject discussed or not discussed in class. This is to guarantee that you are reading. When studying class readings for the exam focus on major conclusions/points, bold terms, and questions from “Testing Your Comprehension”. I will not nitpick and ask date, statistical, overly specific…type questions.
Exam II Review For Environmental Issues

Completed readings

Text: Chapters, 12, 13, and 14

Articles:
   a. Industrial Ecology: From Theory to Practice
   b. Acid Precipitation in the Adirondack Mountains
   c. The Value of Nature and the Nature of Value
   d. The Value of the World’s Ecosystem: Services and Natural Capital

Questions on the exam will come directly from your readings. Approximately 16-20% of the exam will be from the readings. The questions could be on a subject discussed or not discussed in class. This is to guarantee that you are reading. When studying class readings for the exam focus on major conclusions/points, bold terms, and questions from “Testing Your Comprehension”. I will not nitpick and ask date, statistical, overly specific…type questions.

General Test Related Information

1. Study examples; lecture and text terms; case studies; questions posed during class, major readings concepts.
2. Bring pencils.
3. Any information printed on the PowerPoint overhead or written on the board may be on the exam.
4. Answer the “Testing Your Comprehension” questions from your book. I will ask questions directly from this section.
5. Class discussion questions may be on the exam.
6. Information not printed in the very brief PowerPoint outline, such as the definition of a term or an expanded discussion on a specific topic, may be on the exam.
7. I do ask questions which go beyond definitions - questions that make you link several concepts. “Concept understanding” type questions are commonly asked.
8. There will be 45 questions on the exam each worth 1 point.
9. If you have not been coming to class, I do not expect you to do well, as I intentionally design questions that are couched in class lectures and discussions – study hard and good luck.

Test 2 General Study Guide

1. Malthusian overpopulation and other definitions/philosophy's on population/resource, subsistence, and consumption overpopulation
2. Solving for overpopulation discussion: >death rate, family planning, education, build a vested environmental ethic, micro lending, late marriage, health care, retirement plan, birth control…
3. Case Studies: Industrialization as a Fundamental Cause of Environmental Issues i.e. industrial air pollution (SO2, Nox) temperature inversion, smog/ozone, industrial waste at Love Canal, industrial ecosystem, President’s Council on Sustainable Development Comprehensive Environmental Response, Compensation, and Liability Act, United Nations Environmental Program (toxins) manufactured gas plant Oneonta.
4. Acid rain overview – Sulfuric & nitric acid. What is acidification? Understand the pH scale.
5. What are the primary emitters of acid rain generating pollutants?
6. Why are the Adirondacks so heavily impacted by acid rain?
7. Air pollution, orographic precipitation, recent glaciation, westerly wind flow, substrate, & vegetation all contribute toward acidification.
9. How does acidification effect trees? Consider nutrient uptake, aluminum, leaching, illuviation, eluviation, prolonged exposure & weakening …
10. What are macroinvertebrates & how might they be used to indicate acid levels and other pollutant in water?
12. Nuclear energy trends. Why have plants closed down? Number of plants.
13. What are the pros and cons of coal vs. nuclear?
15. Chernobyl: meltdown, wind, areas impacted, cleanup, consequences.
17. New York's solutions to air pollution beyond the federal level: decrease demand, clean up dirty power plants, add clean technologies.
18. Oil, coal, and gas pollution compared to wind.
19. What environmental issues hinder wide scale use of wind? Know wind power myth and fact: wind power will cause brownouts or blackouts or power surges; noise created by wind turbines is excessive and can be heard at great distance, windmills cause high bird mortality, bat mortality, NIMBY, weather and climate change…
20. Three examples of NY wind farms. What lessons can we learn from these wind farms? What local benefits are associated with wind power?
Exam II Review For Environmental Issues

Terms and Discussion Topics to Know From Your Text:


Second Edition Chapter 13 Third Edition Chapter 15 – Central Case Study, Science Behind the Story, The Science Behind the Story, anaerobic, how fossil fuels are created, top producer and consumers of coal, oil, nuclear, and natural gas, R/P ratio, Hubbert’s peak, impacts of fossil fuel use, nuclear fission, cogeneration, dilemmas that slow nuclear growth; Testing Your Comprehension” know questions – Second Edition 1, 2, 3, 5, 6, 7, 8, or Third Edition - exact same questions.

Second Edition Chapter 14 Third Edition Chapter 16 – Central Case Study, Science Behind the Story, The Science Behind the Story, World total energy supply, world total electricity production, US energy from renewable resources, biomass, sources of biomass, passive and active solar, PV cells, states with highest wind generating capacity, OTEC, electrolysis, hydrogen benefits; Testing Your Comprehension” know questions – Second Edition1, 2, 3, 4, 5, 6, 7, 8, 10 or Third Edition - exact same questions.

Questions on the exam will come directly from your readings. Approximately 15-20% of the exam will be from the readings. The questions could be on a subject discussed or not discussed in class. This is to guarantee that you are reading. When studying class readings for the exam focus on major conclusions/points, bold terms, and questions from “Testing Your Comprehension”. I will not nitpick and ask date, statistical, overly specific…type questions.
Exam III Review: Environmental Issues

Completed readings
Text:
Chapters, 9, 5, 8, 11

Articles:
The Value of the World’s Ecosystem Services and Natural Capital (Nature)
Dead Zones: Oxygen-Starved Coastal Waters

Questions on the exam will come directly from your readings. Approximately 18-20% of the exam will be from the readings. The questions could be on a subject discussed or not discussed in class. This is to guarantee that you are reading. When studying class readings for the exam focus on major conclusions/points, bold terms, and questions from “Testing Your Comprehension”. I will not nitpick and ask date, statistical, overly specific…type questions.

General Test Related Information

1. Study examples; lecture and text terms; case studies; questions posed during class, major readings concepts.
2. Bring pencils.
3. Any information printed on the PowerPoint overhead is fair game.
4. Any information written on the board may be on the exam.
5. Class discussion questions may be on the exam.
6. Information not printed in the very brief PowerPoint outline, such as the definition of a term or an expanded discussion on a specific topic, may be on the exam.
7. I do ask questions which go beyond definitions - questions that make you link several concepts. “Concept understanding” type questions are commonly asked.
8. There will be 55 questions on the exam. Each question will be worth 1 point.
9. If you have not been coming to class, I do not expect you to do well, as I intentionally design questions that are couched in class lectures and discussions – study hard and good luck.
Exam III Review For Environmental Issues

Terms and Discussion Topics to Know From Your Text:

**Chapter 9** – Central Case Study, Science Behind the Story, What is wrong with urban sprawl, regional planning, smart growth, sustainable cities, maximum sustained yield, adaptive management, timber harvest methods, salvage logging, public parks, reserves, refuges, wilderness area, rough percentage of protected lands, wise use movement, land trusts, biodiversity, SLOSS dilemma, corridors; From “Testing Your Comprehension” know questions - 4, 5, 6, 7, 9, 10

**Chapter 5** – Central Case Study, Science Behind the Story, mutualism, commensalism, nuetralism, amensalism, competition, resource partitioning, parasitism, community, varying trophic levels, keystone species, succession, temperate deciduous forest, temperate grassland, temperate rainforest, tropical rainforest, tropical dry forest, savanna, desert, tundra, boreal forest, chaparral; Testing Your Comprehension” know questions – 2, 4, 6, 7, 8,

**Chapter 8** – Central Case Study, Science Behind the Story, species diversity, evenness, spices richness, extirpation, background rate of extinction, Red List, causes of biodiversity loss, biophilia, equilibrium theory of island biogeography, flagship species, CITES, endemic, community based conservation; Testing Your Comprehension” know questions – 1, 2, 6, 8, 9, 10

**Second Chapter 11 Third Edition Chapter 16** - Central Case Study, Science Behind the Story, littoral zone, benthic zone, lemnetic zone, profundal zone, aquifers, consumptive and nonconsumptive water use, Colorado river, Ogallala aquifer, water supplies our households, agriculture and industry, effluent, nutrient pollution and other types of water pollution, photic zone, red tides, pelagic, Marine Protected Areas; Testing Your Comprehension” know questions – 1, 3, 7, 8, 9, 10 (second edition and third edition questions and terms are exactly the same).

Questions on the exam will come directly from your readings. Approximately 15-20% of the exam will be from the readings. The questions could be on a subject discussed or not discussed in class. This is to guarantee that you are reading. When studying class readings for the exam focus on major conclusions/points, bold terms, and questions from “Testing Your Comprehension”. I will not nitpick and ask date, statistical, overly specific…type questions.