Environmental Science Midterm Review

Ch.1

* What are several challenges that make environmental science unique?
* Current earth population
* Environmental indicator
* What is meant by “the environment”
* What is the difference between the terms “biotic” and “abiotic”
* What components make up an ecosystem
* Job of Environment Scientist.
* Distinguish between *accuracy* and *precision*.
* Environmental indicators are \_\_\_\_\_
* The measured concentration of CO2 in the atmosphere
* The part of the scientific method
* Dependent, independent variable
* Calculations/Graphing (appropriate labeling, dependent, independent variables)
* Biocapacity
* Ecosystem
* Ecosystem services
* Environmental Indicators
  + Biological diversity
    - Genetic
    - Species
    - ecosystem
  + Food
  + Surface temperature and CO2 concentrations
  + Human population
  + Resource depletion
* Other disciplines important to Environmental science
  + Biologist, chemists,etc
* Resources depletion
  + Define: Development
  + Sustainability
  + Sustainable development
* Ecological footprint

Ch. 2

* What is an environmental system?
* Define:
  + mass, weight, matter, atom, elements, periodic table, molecules, compounds, atomic number, mass number, isotopes.
* Different bonds: covalent, ionic, hydrogen
* Polar molecules
* Define: surface tension, capillary action
* Water properties
* Acid, bases, pH scale
* Chemical reactions
* Balancing equations
* Laws of conservation of energy
* Difference between organic and inorganic compounds
  + Carbohydrates, lipids, proteins, nucleic acids
* Define energy, kinetic, potential, chemical energy, power, temperature
* Laws of thermodynamics
* Formulas of photosynthesis and respiration
* Energy efficiency
* Entropy
* Energy system; open, close, steady
* Negative and positive feedback
* Solve problems of Newtons, calories, power, horse power

Ch.3

* Ecosystem
* Levels of organization- organism, population, biological community, ecosystem, biome, biosphere
* Habitat, niche
* Symbiotic relationships
  + Mutalism
  + Commensalism
  + Parasitism
* Energy in an ecosystem
  + Autotrophs
  + Heterotrophs
* Flow of energy in an ecosystem
  + Detrivores, carnivores, autotrophs, hervibores, omnivores
* Photosynthesis- formula
* Respirations-formula
* Trophic levels, food chains, and food webs
  + Producers, consumers
* Energy transfer efficiency and trophic pyramids
  + Biomass
  + Standing crop
  + Ecological efficiency
  + Trophic pyramid
* Matter cycles through biosphere
  + Biosphere
  + Biogeochemical cycles
    - Water
      * Transpiration
      * Evaporation
      * Runoff
    - Carbon
    - nitrogen
    - phosphorus
* Ecosystems respond to disturbances
  + Disturbance
    - Natural ecosystem
    - Anthropogenic (human made) ecosystem
* Resistance vs. resilience
  + Restoration ecology
* Instrumental values of ecosystems
  + Provisions
  + Regulating services
  + Support system
  + Resilience
  + Cultural services

Ch.4

* Communities
* Limiting factors
* Range of tolerance
* Ecological succession
  + Primary
  + Secondary
* Effects of latitude and climate
  + Weather
  + Latitude
  + Climate
* Classification of biomes (terrestrial, aquatic)
  + Precipitation, temperature, geographic location, abiotic factors of the following:
    - Tundra
    - Boreal forest
    - Temperate forest
    - Temperate woodland and shrubland
    - Temperate grassland
    - Desert
    - Tropical savanna
    - Tropical seasonal forest
  + Mountains
  + Polar regions
  + Aquatic ecosystems
    - Rives and streams characteristics
  + Lakes and ponds zones
  + Marine ecosystems
  + Open ocean ecosystems
    - Zones
* **Study all the figures given previously**