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**