Review for Earth Science Lecture Exam I

The Hydrologic Cycle

**Resources:** Lab 3 on CEES; Textbook Chp. 5; Earth Science Geode Website (http://wps.prenhall.com/esm_tarbuck_appinvest_7/182/46820/11986047.cw/)

**Terms:** Hydrologic Cycle, hydrology, reservoirs, fluxes, infiltration, runoff, evaporation, precipitation, groundwater, oceans, glaciers, surface water, atmospheric water

**Topics:**
What are the reservoirs and the fluxes in the Hydrologic Cycle?
Know the specific fluxes that transfer water around the Hydrologic Cycle?
Describe the size of the fluxes associated with the Hydrologic Cycle in South Texas?

Rivers and Streams

**Resources:** Lab 3 on CEES; Textbook Chp. 5; Earth Science Geode Website (http://wps.prenhall.com/esm_tarbuck_appinvest_7/182/46820/11986047.cw/)

**Terms:** stream source, stream mouth, tributary stream, trunk stream, channel, banks, levee, lowland streams, upland streams, load, bed load, suspended load, dissolved load, downcutting, sidecutting, cut bank, meander, floodplain, oxbow lake, discharge, lag time, ions, cations, anions, drainage basin, drainage divide, capacity, competence, back swamp, oxbow lake, stage

**Key Topics:**
What is a drainage basin?
What is discharge (runoff)? What units are used to define this flux?
How can stream stage vary with discharge during normal and flood events?
What are the different controls on the discharge within a drainage basin?
   The obvious and not so obvious ones.
What conditions increase (or decrease) lag time during flooding?
What are the different types of stream load and know specifically the types of material present in each type of load.
How does downcutting and sidecutting alter the shape of a river valley?
What are the features associated with a mountain stream? (Lab 3; Figure 7)
What are the features associated with a lowland stream? Lab 3; Figure 9)
What is a delta. Why can you call this feature the ultimate outlet or month?
What is the relationship between erosion and deposition in upland, lowland, and delta settings?

Subject: Groundwater

**Resources:** Textbook Chp. 5; Earth Science Geode Website (http://wps.prenhall.com/esm_tarbuck_appinvest_7/182/46820/11986047.cw/)

**Terms:** water table, perched water table, spring, zone of aeration, zone of saturation, permeability, porosity, artesian well, aquifer, aquitard, confined aquifer, unconfined
aquifer, recharge area, karst, caves, sinkholes, sinkhole lakes, non-point source, point source, plume, land subsidence, salt water intrusion, recharge area

Topics:
Basic terminology overview
The water table and two groundwater zones
The three types of aquifers
Groundwater as a resource and groundwater mining
What is karst and karst topography?
Other groundwater hazards
An overview of the different types of water pollution.
Compare how aquifer contamination differs between gasoline and solvents
Focus on what a contamination plume is?

Deserts and Dry Climates
Resources: Lab 4 on CEES; Textbook Chp. 6; Earth Science Geode Website (http://wps.prenhall.com/esm_tarbuck_appinvest_7/182/46820/11986047.cw/)

Terms: desert, subtropical desert, rain shadow desert (also called mid-latitude desert), steppe, sand dunes, deflation, desert pavement, ventifacts, alluvial fans, playa lakes, bajada, blowouts, slip face, cross beds, inselberg, low latitudes, mid-latitudes, high latitudes, Basin and Range

Topics:
What is the importance of latitude in terms of climate across the world?
Be able to describe the difference between low and high pressure?
What is the precise definition of a desert? Of a steppe?
Where are deserts (what latitudes) formed and what are the 3 types of deserts?
How does wind affect: silt and clay particles; sand particles; gravels?
How does wind shape the land (topography) in a dry/desert environment?
How does water shape the land in a dry/desert environment?
Know how the landscape in the Basin and Range changes over millions of years?
Know the features present in the early and late stages of development of the Basin and Range

Shoreline Environment
Resources: Lab 5 on CEES; Textbook Chp. 15; Earth Science Geode Website (http://wps.prenhall.com/esm_tarbuck_appinvest_7/182/46820/11986047.cw/)

Terms: crest, trough, wavelength, wave base, wave break, surf, wave refraction, headland, bay, longshore currents, beach, spit, baymouth bar, barrier island, sea stack, tides, high tide, low tide, spring tide, neap tide, lunar phases

Topics:
Know the basic terminology associated with waves
What is the difference between a wave of oscillation and translation
What is the difference between longshore current and beach drift? How can you tell the direction of movement of longshore currents

Know the different features present on passive sandy shorelines; both natural and human made

Know the processes of how wave refraction shapes active shoreline

Know the different features present on active rocky shorelines

Know what causes daily tides

Know what causes monthly tides and how to recognize when they will occur