GEOL 104 Dinosaurs: A Natural History
On-line Test I Review Sheet
EXAM 1 Must be Completed between: Sept. 23 & 27

The nature of Science: empirically based hypothesis testing; observation, inference & speculation; role of publication and peer review; falsification, parsimony, consilience. Scientific publications. Peer-review.

Major events in history of paleontology, evolutionary biology, and geology, in particular the major contributions of:

Georges Cuvier	William Buckland	Gideon & Mary Ann Mantell
Richard Owen	Joseph Leidy	Edward Drinker Cope & Othniel Charles Marsh
John Ostrom	Nicolas Steno & James Hutton	
William "Strata" Smith		

Major changes in our understanding of dinosaurs since the early 19th Century

Major groups of rocks, with emphasis on sedimentary rocks (biogenic, chemical, and detrital) and how they form (weathering, transport, deposition, cementation, recrystallization)

Environments of deposition and sedimentary structures; be able to reconstruct the environment from rock type and sedimentary structures (high energy vs. low energy; sedimentary structures [e.g., cross-beds, mudcracks, ripple marks, trough cross-beds, coal, etc.])

Body Fossils vs. Trace Fossils

Taphonomy : burial, fossilization [unaltered, permineralized, replaced, carbonization, impressions])
- Different preservational potentials in different types of organisms and different environments

Basics of Stratigraphy:
- Principles of Original Horizontality, Superposition, Cross-Cutting Relationships, Fossil Succession
- Formations
- Relative vs. Numerical Ages
- Index fossils and correlation; properties of a good index fossil
- Radiometric dating, Magnetostratigraphy
- Combining relative and radiometric dating to find possible ages for fossils
- The Geologic Time Scale: Eras, Periods, Epochs (**know the periods & epochs of the Mesozoic**)

Plate tectonics: How does it affect the surface of the Earth? How does plate tectonics result in the Rock Cycle?

Ecology:
- Photosynthesis and aerobic respiration. Autotrophs vs. heterotrophs.
- Trophic relationships, trophic levels (producers, decomposers, consumers (1st, 2nd, 3rd, etc.)).
- Food chains/webs, Energy pyramid