Lecture 1: Introduction
Know how to define the Southwest.
Know the rivers on the map

Lecture 2: Geology General and SW
Know the geological provinces of the SW and be able to compare them (sediments, topography, growing season, etc.)
Know the different rock types.
Know the rock cycle.
Know the basics of plate tectonics (subduction, fault types, etc)
Includes reading about Ice Ages.

Lecture 3: Climate and Circulation: General
Know radiation amounts absorbed by earth, atmosphere.
Know why we have seasons.
Know large-scale global circulation patterns and reason for the patterns
Know what happens to hot and cold air
Know the dry lapse rate
Know the coriolis effect—direction
Know where and why deserts are located in the world

Lecture 4: Climate in SW
Know about bimodal precipitation—where in SW
Describe different precipitation patterns in different areas of SW
Know the four different types of air masses
Be able to describe and contrast El Nino & La Nina, and their effects on the SW
Be able to describe Tucson annual precipitation patterns for the past 120 years
Describe the mechanics of a summer convection storm in Tucson
Includes reading on monsoons

Lecture 5: Dating Techniques
Name to two classes of dating techniques
Know the basic premise of archaeomagnetic dating
Know the basic premise of radiocarbon dating
Know the half-life formula
Know some of the problems with radiocarbon dating
Know the premise of Dendrochronology
Includes the reading “HH-39: A Dramatic Moment in SW....”
Lecture 6: Paleo-ecology and paleo-climate Techniques
Know the basics of the four techniques discussed in class
Know the principle of Uniformitarianism
Know the usefulness of Modern homework
Be able to describe vegetation changes and what they mean about past environments
Know about tree-ring reconstructions of precipitation and temperature—methods
Includes reading “Packrat Historians”

Lecture 7: SW Desert Ecosystems
Define a desert
Draw an example of the rainshadow effect
Describe structural plant adaptations to desert environments
Describe behavioral plant adaptations to desert environments
Identify the four North American deserts, their climate patterns (precip and temp), and major plant species
Describe useful food plant species in the Sonoran desert

Lecture 8: Mountain Ecosystems
Know Island biogeography and how it applies to the SW
Know the “oceanic sources” of plants and animals in the Sky Islands
Know what makes the Sky islands unique in the world
Know why the Sky islands are wetter and cooler that the desert
Know the dry lapse rate
Know the effects of sky island climate on plant species distributions
Know the zonation of vegetation types on different Sky Islands
Know the effects of north vs. south slopes on Sky Island vegetation
Know what products mountains provide to the overall SW ecosystem
Be able to describe the distribution of threatened and endangered species in SW National Forests, particularly the Coronado National Forest
Describe why the Coronado National Forest is different.