ASTRO710 / GE710b – Geology of Mars

GLOSSARY (kinda – courtesy of Robert Lodge)

TES	Thermal emission spectrometry
OMEGA	Observatoire Martien pour l'étude de l'Eau pour les Glaces & l'Activité
TIR	Thermal infrared spectrometry
Clay Mineral	Silicate mineral rich in Al, Si. Hydrous (contains OH group). Sheet silicate meaning atoms arranged in planes. Example is Montmorillonite
Gamma Ray Spec.	Contains both gamma ray and neutron detectors. Neutron detector detected hydrogen on Mars
Mineral	Naturally occurring crystalline inorganic solid with known chemical composition
Rock	Composed of minerals, and/or glass, and/or rock fragments
Igneous Rock	Crystallized from magma
Magma	Liquid rock, and/or gas, and/or minerals
Volcanic Rock	Rocks formed by an erupting volcano
Sub-volcanic Rock	Rocks formed very close to surface beneath a volcano
Plutonic Rock	Crystallized magma body within the crust
Sedimentary Rock	Rock formed by either (1) the mechanical erosion, transportation, deposition, and lithification of other rock(s), or (2) the chemical precipitation of a solid from solution
Stratigraphy	The sequence of which different rocks are deposited (i.e. layers of rock)
Salt	Type of chemical precipitate`
Concretion	A mineral that fills the porosity of sedimentary rocks
Vugs	Gas cavities in plutonic rocks
Vesicles	Gas cavities in volcanic rocks
Plagioclase	$(Na,Ca)Al_2Si_2O_8$. Often expressed as %Anorthite (Ca end-member)

Pyroxene	$(Ca,Mg,Fe)_2Si_2O_6$. Orthopyroxene only contains Mg, Fe. Clinopyroxene contains Ca, Mg, Fe.
Mafic	Classification of igneous rocks with low wt% SiO_2 (45-52%), rich in Mg, Fe, Ca, and density >3. Most common is basalt
Ultramafic	Classification of igneous rocks with very low wt% SiO_2 (<45%), very rich in Mg, Fe density >3. Most common is pyroxenites, dunites.
Basalt	Mafic igneous rock composed of ~ equal parts clinopyroxene (and/or orthopyroxene and/or olivine) and plagioclase
Cumulates	Type of igneous rock formed by accumulation of dense minerals (olivine, pyroxene) at the bottom crystallizing magma body.
Shergottite	Meteorite classification based on the Shergotty locality of first find. All subsequent meteorites found with similar characteristics were grouped with the first find.
Nakhlites	Meteorite classification based on the Nakhla locality of first find. All subsequent meteorites found with similar characteristics were grouped with the first find.
Isotopes	Atoms with same number of protons and electrons; but differ in the number of neutrons thus have a different mass. Commonly expressed as δ___ per mil.
afu	Atomic formula unit
Apatite	Ca-phosphate mineral. Commonly found as trace mineral in igneous rocks.