

WHAT THE FACULTY TEACHING UPPER LEVEL CORE COURSES NEED TAUGHT IN GLS 100

Obviously all of us want the material to be taught at the appropriate level for GLS 100. For example, when introducing metamorphism & plate boundaries there is no need to go beyond the idea of contact & regional metamorphism as related to plate boundaries. Loading students down with terms like blueschist and greenschist is not necessary.

Physical and Chemical State of the Earth

interior of the earth - layers of the earth & associated terms, nature of p & s waves and how seismic waves are used to define the physical state of layers, major element composition of core vs mantle vs. crust (1 or two elements), magnetic property of earth. Many students do not know the difference between the crust & lithosphere.

Plate Tectonics settings, magma generation, associated metamorphism

Minerals

- basic atomic structure & types of bonds
- eight most common elements in crust
- density of continental vs. oceanic vs. mantle vs. core material
- what the silicon-oxygen tetrahedron is & that the majority of the crust consists of silicate minerals (no need to do the different silicate structures)
- the different major mineral groups – oxides, sulfates etc. – they should at least know the names & that not all minerals are built from the same components
- isotopes (this can be covered in the geologic time section)

Rocks

- igneous & other rock terms: felsic, mafic etc. as well as clear understanding of the limitations of these terms (for example, that the phaneritic is not typically used for sedimentary or igneous rocks & that foliated is associated with metamorphism).
- weathering & sediment formation leading to depositional environments at an introductory level
- basic sedimentary rock types and basic terminology

Structural Geology/Geologic Time

- folds & faults in some detail i.e. terms like axis, limbs, relative age of rocks in syncline versus anticline hanging wall, footwall – a related lab is needed
- geologic time – relative & absolute dating concepts
- Geologic Time Scale