

# GLY 301

**Final Exam Topics** (for the final on Thursday Dec. 17<sup>th</sup>, 10:30 am – 12:30 pm in 339)

**Things to know from the newest material:** (for the final)

Detailed structure and chemistry of orthopyroxene and clinopyroxene. Their diagnostic optical properties.

Detailed structure and chemistry of the amphiboles.

Miller indices and “name” of cleavages in pyroxenes and amphiboles.

How to “make” a hornblende from an actinolite.

The geology of opx, cpx, amphiboles.

How to recognize that a mineral has experienced a Tschermak’s substitution.

Using the bulk chemistry of a rock (i.e. Mg-rich, like dolostone, or Al-rich, like shale) to give clues to mineral identification (i.e. it’s unlikely to find talc in a shale).

The mineralogy of dunite and how it forms.

Origin of New York wollastonite deposits.

Mineralogy of eclogite

Mineralogy of “bad” vs “not bad” asbestos.

Diopside and tremolite forming reactions.

Main minerals of the pyroxene ternary diagram, esp the corners of the pyroxene quadrilateral.

The geology of garnet, and aluminosilicate polymorphs.

Garnet chemistry.

What happens to olivine and opx in the mantle.

The PT diagram of the  $Al_2SiO_5$  system and their presence in regional versus contact metamorphic rocks.