Physical conditions & Bowen’s Reaction Series

Mafic
- Unstable at 1 bar & 25°C (surface conditions)
- Contains High Ca, Mg, Fe
- Formed at High Temperature & Pressure

(Fo then Fa)

Felsic
- More Stable
- Contains High K, Na, Si
- Formed at Low Temperature & Pressure

(Ens then Aug & Di)

BOWEN'S REACTION SERIES

- Low Silica Minerals
- Discontinuous Reaction Series
- Amphibole
- Biotite
- Sodium Plagioclase
- Potassium Feldspar
  Muscovite
  Quartz
- Continuous Reaction Series
- Calcium Plagioclase
- (Ab)
- (An)
Composition of Igneous Rocks
Heat Sources in the Earth

1. Heat from the early accretion and differentiation of the Earth
   - still slowly reaching surface

2. Heat released by the radioactive breakdown of unstable nuclides