Getting Started!  Come to class &…

Online Syllabus with links to lectures
http://academic.emporia.edu/abersusa/go340/syllabus.htm

Final Course Project
http://academic.emporia.edu/abersusa/go340/webpage.htm

Gem Quiz
http://academic.emporia.edu/abersusa/go340/gemquiz.htm

Gem Definitions & History
http://academic.emporia.edu/abersusa/go340/define.htm

Gem Briefs
http://academic.emporia.edu/abersusa/go340/gembrief.htm
Gemology/Gemstones

• **Gemstone:** Stones that are for personal use and desired for beauty, rarity, durability, and stability.
  • Only 70 minerals are classed as gemstones; 20 of these are common.

• **Gemology:** Science of gems based on Chemistry/Physics/Geology.
Mineralogy/Mineral

- **Mineralogy**: Study of minerals based on crystalline structure, chemical composition, origin, occurrence and associations.

- **Mineral Characteristics**:
  - Naturally Occurring
  - Homogenous
  - Solid
  - Fixed Chemical Composition
  - Fixed Crystalline Structure
  - Inorganic
Mineralogy/Mineral Cont.

- **Natural**: Not made in a lab.
- **Homogenous**: Is the same throughout.
- **Solid**: No liquid or gas phases.
- **Defined Chemical Composition/Crystalline Structure**: Fixed composition/geometric pattern.
- **Inorganic**: Made by chemical/geological processes.
- **Mineraloid**: Mineral that lacks part of these qualifications.
Gemology/Gemstones Terminology

- **Beauty**: Color, Luster, Transparency, cutting properties.
- **Durability**: Resistance to scratching and breaking.
- **Tenacity**: Resistance to breaking.
- **Hardness**: Resistance to scratching.
- **Stability**: Ability to retain original color and properties.
Basic Value & Grade

Figure right taken from Barbara Smigel (2008)
www.bwsminel.info/Lessons1and2/DEBasicTerms.html

- **Rarity**: Limited supplies can raise price and demand. Higher demand can help to find new discoveries.
- **Demand or Fad**: Prices depend on what current fads or fashions are currently in style.
- **Portability**: Prices are high based on the size of the gemstones relative to other objects.
Gem Naming/Classification

- Divide gems as diamonds and colored stones **NOT** precious and semiprecious stones.
- Gemstones named from: Color, Origin, Properties, Characteristics, People, Special names to promote although sometimes misleading.
- **New gemstones must be authorized** by Commission on New Mineral Names of the International Mineral Association.
Gemstone Classification

- **Inorganic Types**
  - **Groups:** Similar Properties/Structures.
  - **Species:** Similar Structures/Compositions.
  - **Variety:** Similar Colors/Optical Properties. Examples - color, transparency, refraction.

- **Organic Types**
  - **Chemical Compositions:** This would include gems such as Jet or Ivory.
Synthetics/Imitations

• First started in 1800’s due to high demand.
  • Examples include Diamond, Spinel and Opal.

• **Synthetic**: Made to have identical properties of real gem.

• **Imitation**: Made to look like the real gem without identical properties.
Basic History of Formal Gem Education

- Gemstones course first taught at a Colorado university in 1909.
- Gemological Society of America founded in 1930 by Robert Shipley.
  - GIA offers courses in gem/bead identification, value, designing and sales.
  - GIA is a non-profit organization based on money from public services and publications.
  - Plentiful educational opportunities concerning gemstones.
References & Links!


Gemological Institute of America. http://www.gia.edu/


Synthetic & Simulant


Natural Gemstones http://pubs.usgs.gov/gip/gemstones/

Annual Gemstone Production
http://minerals.usgs.gov/minerals/pubs/commodity/gemstones/