

ME571-01/ME571D-01/GEO571-02/GEOL571D-01 Geology and Economics of the Industrial Minerals (3 credits)

Spring 2018

The class will meet one day on Mondays, 4-7 PM, Cramer 127 for ~120 minutes with the remaining time spent on field trips or in occasional extra discussion sessions with visiting industrial mineral notables.

Industrial minerals and rocks are literally the building blocks of our way of life and they are an exceptionally diverse and vital group of raw materials that underpin almost all aspects of human activity, infrastructure, and standard of living. Industrial minerals and rocks are used in the manufacture of many products, from ceramics to plastics and refractories to paper. Although industrial minerals permeate every aspect of daily life, their presence and their role are typically invisible. A widely used definition of industrial minerals and rocks is “any rock, mineral, or other naturally occurring substance of economic value, exclusive of metal ores, mineral fuels, and gemstones: one of the non-metallics”. This class will explore the different commodities that are considered industrial rocks and minerals, from exploration, development, mining, processing, and marketing. Field trips to industrial mineral mines will be included.

January	22—Introduction: IM definition and overview 29—Basic concepts: Geology, mining, and processing
February	5—Basic concepts: Geology, mining, and processing 12—More IM basic concepts; IM industry flow sheet, Transportation 19—Sustainable development 26— Midterm exam (Take Home) Annual SME meeting in Denver, no class
March	5— Commodities: Introduction 12— spring break NO CLASS 19— Commodities 26—Marketing, QA/QC, IM Trends
April	02—Commodities 9— New Mexico Geological Society Spring meeting, Socorro 16—Commodities 23—Commodities 30— Present research results in class
May	07— Present research results in class (15 mins); Final exam given out (Take Home) 11— Final Exam due by noon on May 11 th

Required Textbook

Kogel, J.E, Trivedi, N.C., Barker, J.M., and Krukowski, S.T., 2006, ed., Industrial Minerals and Rocks, 7th edition: Society for Mining, Metallurgy, and Exploration, Littleton, Colorado—available online from SME at student price \$193 if you become a member online (use McLemore member #2142500 as recommendation) to get this price (save more \$ than membership costs plus you should all be members of SME anyway) NOTE: I also have this on CD for anyone not wanting to buy it.

Class Details

Exams: Midterm and Final – both are take home exams that will emphasize short answer and essay questions.

Term project – you are required to do a research project (thesis works) that will involve some original work. You can work on this as a team.

Discussion – we will assign papers to be read prior to class to be discussed by the class with one of you leading us. Each class member will be responsible for researching and leading the discussion (15 min) on one commodity.

Field trips – there will be 2 or more field trips and a field report on each trip will be required.

Basis for final grade	Midterm	25%
	Final (comprehensive)	30%
	Term project	25%
	Class Participation, field trips	20%