Draft Agenda
Professional Development Short Course: I. Geological Inputs to Mine Planning
(October 18-19, 2019)
University of Arizona, Student Union Memorial Center. Sonora Room, First floor
1303 E. University Blvd, Tucson AZ, 85721

Day 1
I. Course introduction (8 – 8:45 AM)
   • Introduction and overview of this course series (Isabel)
   • Geology in the mine life cycle and the mining value chain (Ralph?)

break

II. Overview of rock and mineral properties (9 – 10 AM) (Isabel)
   • Introduction to geological terms and concepts
   • Common minerals and rocks and their properties
   • Rock formation and degradation: the rock cycle and geologic settings

break

III. Introduction to ore deposit geology, Part 1 (10:15 AM – 12:15 PM) (Isabel/Mark/Eric)
   • Definition and characteristics of an ore deposit
   • Survey of ore deposit types and characteristics

Lunch break (12:15 – 1 PM)

Activity #1. Rock and mineral properties / deposit characteristics (1 – 2 PM)

IV. Introduction to ore deposit geology, Part 2 (2:15 – 4 PM) (Isabel/Mark/Eric)
   • Mineralogy and geochemistry of deposit types

break
   • Geologic structure and ore deposits
   • Supergene circulation and weathering of ore deposits

break

V. Geology and geotechnics (4 – 4:45 PM) (Brad/Chad?)
   • Rock and rock mass properties that affect geotechnics
   • Faults, joints, bedding planes, and other discontinuities
   • Slope and excavation degradation over time
   • Hydrogeology and geotechnics

Wrap-up of Day 1 (4:45 – 5 PM)
Day 2

Introduction (8 – 8:15 AM)

VI. Resource block modeling (8:15 – 10 AM?) (Jerry)
- Data acquisition: mapping, sampling, and drilling
- Mineralogical ore types
- Databases: coding, validation

break
- Modeling software
- Sectional and plan interpretation: traditional methods, wireframing, solids
- Geostatistics overview and grade interpretation methods

break
- Resource classification methods (measured, indicated, inferred)
- Model reconciliation to production data

break

VII. Geometallurgy and process mineralogy (10:15 – 11:15 AM) (Isabel)
- Review of relevant rock and mineral properties
- Impact of mineralogy on mining, processing, and metallurgy
- Spatial variation at the deposit scale
- Methods of characterization

break

VII. Mine geology (11:30 AM – 1 PM) (Ralph)
- Ore control, blasthole logging, targeting
- Operational and processing support
- Blasthole or short-term modeling
- Pit mapping

Lunch break (1 – 1:45 PM)

Activity #2. Interpretation of drill hole lithologic data and reconciliation (1:45 – 2:30 PM)

VIII. Environmental geology (2:30 – 3:45 PM) (Erick Weiland?)
- Acid mine/rock drainage and remediation
- Heavy metal contamination and remediation
- Water conservation and dust control

break

IX. Panel on Integrated Planning: What do geologists need from mining engineers and metallurgists? (4 – 4:45 PM)

Conclusion and exit survey (4:45 – 5 PM)