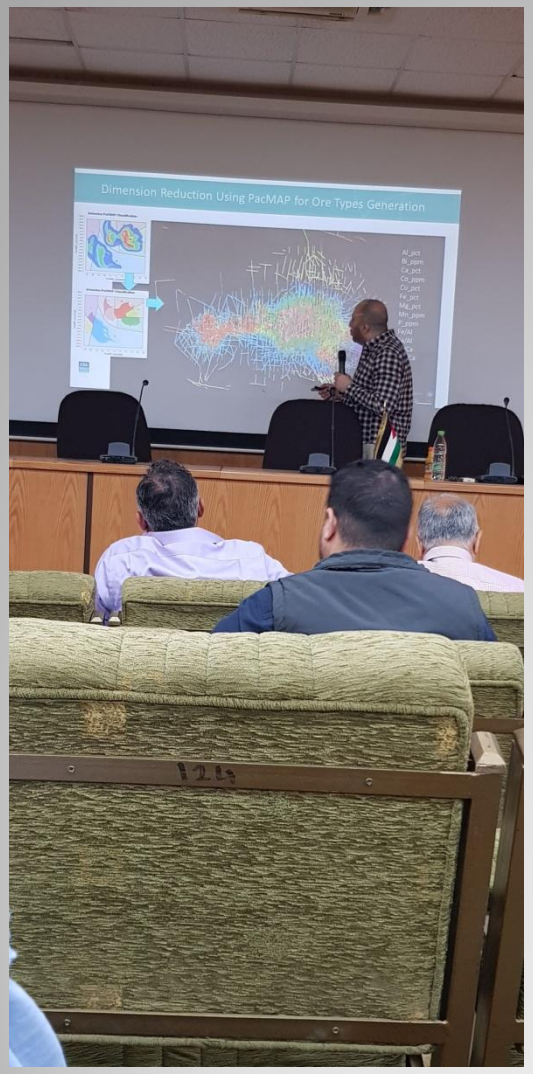


College of Science

Earth and Environmental Sciences Department

Date: Wednesday 11 May

Time: 13:15

Lecture Title:

Applications of Geostatistics and Machine Learning in Mineral Resources Evaluation

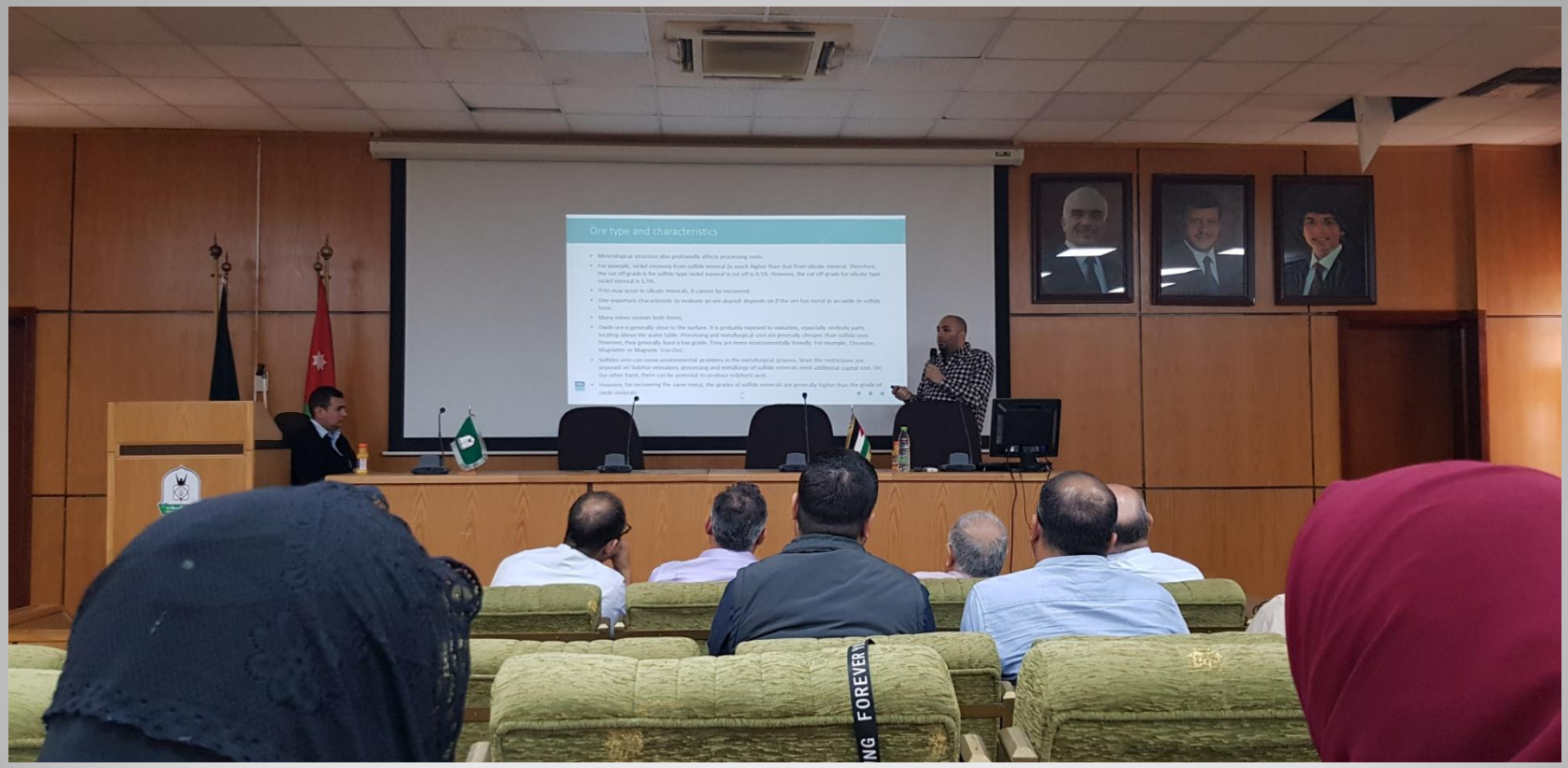
Speaker: Same Al Homoud

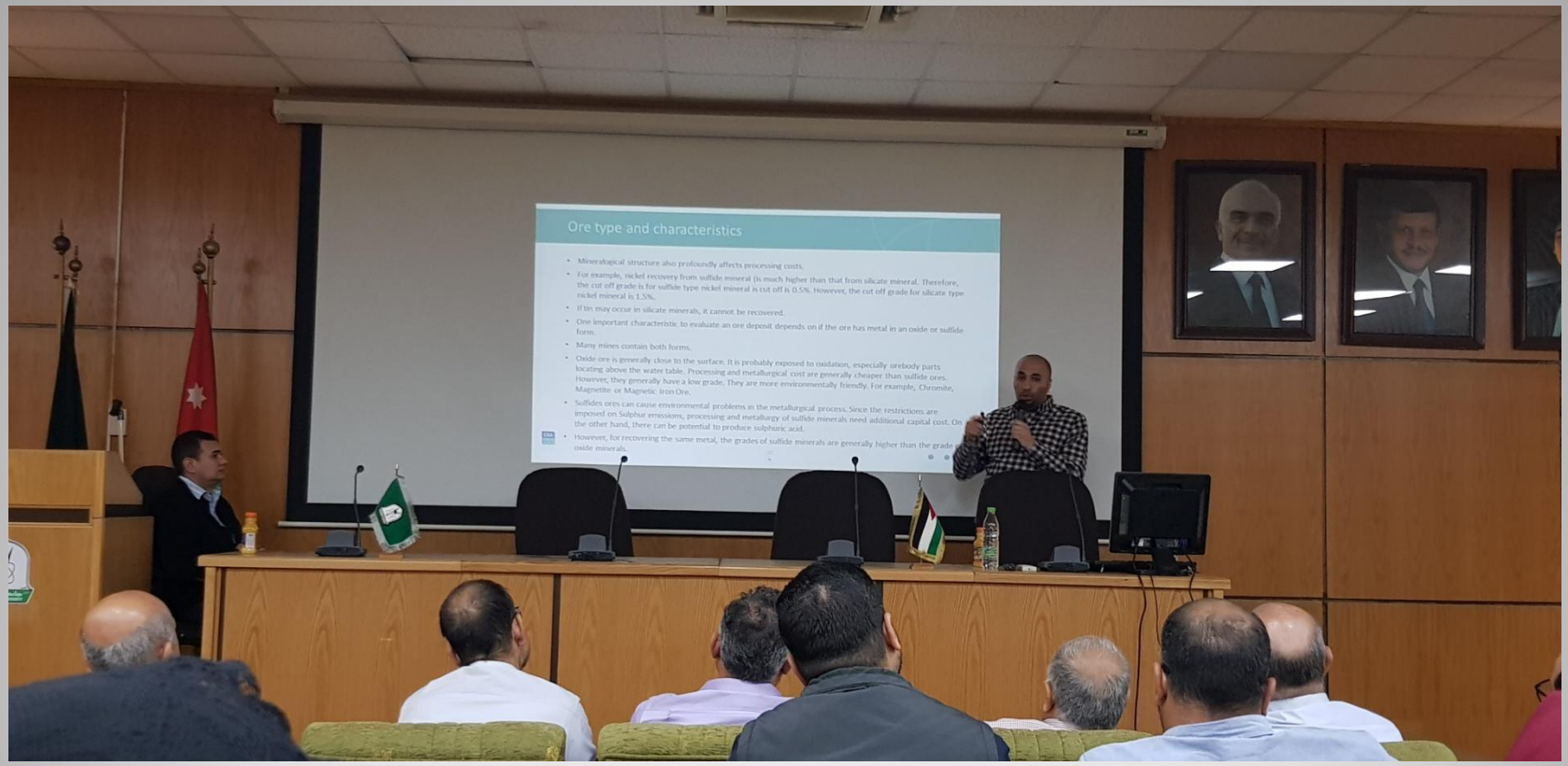
Company: CSA Global

Position: Senior Geostatistician

University: McGill University, PhD student in mining engineering

في مبنى كلية العلوم - مدرج عدنان بدران


Ore type and characteristics
• Mineralogical structure also profoundly affects processing costs.
• For example, nickel recovery from sulfide mineral is much higher than that from silicate mineral. Therefore, the cut off grade is for sulfide type nickel mineral is cut off is 0.5%. However, the cut off grade for silicate type nickel mineral is 1.5%.
• If tin may occur in silicate minerals, it cannot be recovered.
• One important characteristic to evaluate an ore deposit depends on if the ore has metal in an oxide or sulfide form.
• Many mines contain both forms.
• Oxide ore is generally close to the surface. It is probably exposed to oxidation, especially orebody parts locating above the water table. Processing and metallurgical cost are generally cheaper than sulfide ores. However, they generally have a low grade. They are more environmentally friendly. For example, Chromite, Magnetite or Magnets Iron Ore.
• Sulfides ores can cause environmental problems in the metallurgical process. Since the restrictions are imposed on Sulphur emissions, processing and metallurgy of sulfide minerals need additional capital cost. On the other hand, there can be potential to produce sulphuric acid.
• However, for recovering the same metal, the grades of sulfide minerals are generally higher than the grade of oxide minerals.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