Department: Mining Engineering **Division:** Mining Exploration

Level and Major: MSc, Mining Exploration

Course Title: Design of Geochemical Exploration Projects

Number of Credits: 2 **Lecturer:** Dr. Ardeshir Hezarkhani

Course Goals and Objectives

Introducing the Standard methods for mineral exploration activities.

Course Topics

- Overviews of Exploration Projects
- Reduce investment risk in exploration projects (optimization)
- Evaluation of probability of discovery in hidden deposits
- The role of ore geometry in exploration (magmatic, hydrothermal, sedimentary)
- Exploration costs and their modeling
- Optimization (concepts and applications)
- Exploratory design for copper-molybdenum porphyry deposits
- Exploratory design for lead and zinc ores
- Exploratory design for vein gold deposits
- Selection of promising areas for drilling operations

Reading Resources

- Analytical Methods in Geochemical Prospecting (Handbook of Exploration Geochemistry) (Vol.1) by W. K. Fletcher (Oct 1981)
- Analytical Methods For Geochemical Exploration by J. C. Van Loon and R. R. Barefoot (Dec 12, 1988)
- Drainage Geochemistry (Handbook of Exploration and Environmental Geochemistry) by M. Hale and J.A. Plant (Dec 27, 1994)
- Drift Exploration in Glaciated Terrain (Geological Society Special Publication) by Margaret Beth McClenaghan, P. T. Bobrowsky, G. E. M. Hall and S. J. Cook (Nov 1, 2001)