**AHS 2208 Metal Analysis in Archaeology**

**Course objectives:**  The course teaches students about the place of metallurgy in human culture and how to analyze metallurgical remains found in archaeology.

**Course Description**

Students will learn how different metals (Fe, Au, Cu and Pb) and alloys (bronze, brass, and carbon steel) are processed, how to recognize the material remains of different processes in the field, how to conduct qualitative and quantitative analyses in the laboratory and how to interpret results.

**Assessment:** 30% Course Work; 70% Examination

**Course Outline**

Topic 1: Introduction

* 1. Nomenclature
  2. Metals and alloys

Topic 2: Origins of Metal Age

2.1 Hypothesis and evidence

2.2 Metal ages

Topic 3: The Process of Iron production

3.1 Accessories and raw materials

3.2 Types of iron technologies

3.3 Chemistry and Physics of Iron working

3.4 Products of iron working

Topic 4: Processing Iron and Steel Materials (Forging0

4.1 Cold processing

4.2 Hot processing

Topic 5: Preservation of Metals

5.1 Preservation on surface

5.2 Preservation underground

5.3 Preservation underwater

Topic 6: Techniques of Metal Analysis

6.1 Physical/attribute analysis

6.2 Elemental analysis

6.3 Chemical analysis

6.4 Metallographic analysis

Topic 7: Attribute Analysis

7.1 Ore

7.2 Slag

7.3 Furnace walls

7.4 Tuyeres

7.5 Charcoal

7.6. Metal Objects

**Basic Readings**

Askeland, D.1989. *The Science and Engineering of Materials.*Boston: PWS-Kent Publishing Company

Mapunda, B. 1995.*An Archaeological view of the History and Variation of Iron Working in South-western Tanzania. PhD Thesis,* University of Florida.Gainesville.

Schmidt, P. 1997. *Iron Technology in East Africa: Symbolism, science and archaeology.*Bloomington: IndianaUniversity Press