

**University of Anbar**  
**College of Science**  
**Department of Applied Geology**

**Field Geology**

**Title of the lecture**

**Essential field, Sampling, Optional and Specialist Equipment**

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# Field Geology

## First Lecture

### Essential field, Sampling, Optional and Specialist Equipment

**Table 1: Equipment required for most geological field work.**

**Essential field equipment:**

1. Field notebook.
2. Pencils, eraser, pencil sharpener.
3. A few colored pencils.
4. Tape measure, surveyor's tape or folding ruler.
5. Hand lens.
6. Compass – clinometer.
7. Comparison and identification charts appropriate to the task.
8. Relevant topographical maps.
9. First aid kit and any personal medical supplies that might be required.
10. Backpack/rucksack.
11. Food and water sufficient for the fieldwork period.
12. Emergency food supplies.
13. Suitable clothing and footwear.
14. Spare clothing and/or sunblock as appropriate.
15. Mobile phone, radio or satellite phone.
16. Safety equipment as appropriate.

#### **The hand lens and binoculars**

The hand lens is an essential piece of equipment for the detailed observation of all rock types and fossil material. Most have a lens with  $10\times$  magnification and some contain both a  $10\times$  and a  $15\times$  or  $20\times$  lens. If your eyesight is poor, a better-quality lens will often help, especially a larger

lens. It is also possible to obtain lenses with built - in lights, which can enhance the image considerably.

### **The compass – clinometer**

The compass - clinometer is used to measure: (1) the orientation of geological planes and linear features with respect to north; and (2) the angle of dip of geological features with respect to the horizontal. The compass - clinometer can also be used in conjunction with a topographic map to accurately determine location.

### **Table 2. Typical sampling equipment.**

#### **Sampling equipment**

1. Geological hammer.
2. Sample bags.
3. Paper, cling film or bubble wrap to wrap delicate samples.
4. Marker pens/tile scribe/correction fluid for labelling.
5. Chisels and other hammers.
6. Trowel and/or spade for soft sediments and pyroclastic deposits

### **Table 3. Optional and specialist field equipment.**

#### **Optional and specialist equipment**

1. Mapping pens/fine tipped pens.
2. Relevant literature.
3. Handheld GPS.
4. Camera.
5. Geophysical tools.
6. Penknife.
7. Weak hydrochloric acid (c. 10%).
8. Clipboard or mapping case.

9. Ruler and protractor.
10. Mapping pens, colored pencils.
11. Binoculars.
12. Scratch/streak plate.
13. Pocket stereoscope.
14. Geological Munsell color chart.
15. Jacob staff
16. Hand brush to clean exposure.
17. Hoe pick for cleaning sections.

## **Reference**

Angela L. Coe Tom W. Argles David A. Rothery Robert A. Spicer. 2010 GEOLOGICAL FIELD TECHNIQUES, Department of Earth and Environmental Sciences, The Open University, Walton Hall, Milton Keynes, UK