

LAB 2
CLASSIFICATION OF IGNEOUS ROCKS (IUGS)

This lab is designed to introduce you to the various igneous classification schemes that you will use the rest of this quarter.

0. Do this exercise together as a class: see p.19-20 in Nesse for info about micrometers. Calibrate your microscope for 4x and 10x.

Power	X hatchmarks per 1 mm	Y mm per 1 hatchmark
4x		
10x		

$$\frac{\text{X hatchmarks}}{1 \text{ mm}} = \frac{1 \text{ hatchmark}}{\text{Y mm}}$$

1. Study hand sample and thin section of the following samples:
 1. 214/s-251c
 2. L-95-11 (don't need to distinguish type of pyroxene or amphibole)
 3. L-40-7
- a) Provide a brief description of each sample using page one of the three-page Sample description worksheet. Indicate plagioclase zoning (normal or oscillatory) but do not include plagioclase composition. Use as many vocabulary words as are reasonably appropriate! Use the keys provided for lab 1 and the list of words on the next page of this lab as a guide.
- b) **For all samples from Lab 1 and Lab 2**, name each rock using the IUGS classification.
- c) Fill in the attached table that summarizes your observations of each sample.

Texture Terms to include in Lab 2

In a rock with a phaneritic texture, where all grains are about the same size, we can use the following grain size ranges to describe the texture:

- <1 mm fine grained
- 1 - 5 mm medium grained
- 5 - 3 cm coarse grained
- > 3 cm very coarse grained

In a rock with a porphyritic texture, we can use the above table to define the grain size of the groundmass or matrix, and the following criteria to describe the phenocrysts:

- 0.03 - 0.3 mm microphenocrysts
- 0.3 - 5 mm phenocrysts
- > 5 mm megaphenocrysts

Cumulative textures

holocrystalline	subhedral
hypocrystalline	anhedral
holohyaline	allotriomorphic
glassy (vitrophyre)	hypidiomorphic
aphanitic	panidiomorphic
phaneritic	zoning (normal, reverse, oscillatory)
porphyritic-aphanitic	resorbed grains
porphyritic-phaneritic	reaction rims
equigranular	inclusions
inequigranular	exsolution
hiatal-porphyritic	sieve texture (plagioclase)
seriate-porphyritic	vesicular
glomerocryst	trachytic
euheral	

Lab 2 Summary Chart (page 1)

	Hand Specimen				Thin Section		Rock Name (based on IUGS classification)
	Color	Visible Minerals	Texture (Aphanitic, Phaneritic, Porphyritic)	Field Name	Major Minerals	Plutonic or Volcanic	
Lab 2 Samples							
1) 214/s-251c							
2) L-95-11							
3) L-40-7							

Lab 2 Summary Chart (page 2)

	Lab 1		Lab 2
	Plutonic or Volcanic	Rock Name (based on simple classification)	Rock Name (based on IUGS classification)
<u>Lab 1</u> <u>Samples</u>			
1) 214/s-148B			
2) 254L-2-7			
3) L-11-74			
4) R00LV62			