

THE UNIVERSITY OF UTAH
DEPARTMENT OF GEOGRAPHY

GEOG 5100/6100 – AERIAL PHOTOGRAPH INTERPRETATION

Final Review Questions

12/1/2005

1. What are the elements of visual interpretation? Practice on photo and image interpretation (see assignment 8).
2. What are the major steps involved in supervised and unsupervised classification? Describe the differences of the two.
3. What is spectral class and information class?
4. Can you name some classifiers we discussed in the class for supervised classification? What are the differences of these classifiers?
5. If you have high spatial resolution imagery, what information can you take advantage of and what particular classification method would you adopt? For which type of land surface features, such as land cover and land use categories, would you adopt such classification method?
6. How is classification accuracy assessed? What is commission error and omission error? What is the difference between overall accuracy and kappa coefficient?
7. You want to perform a classification on a satellite image, but when examining its histogram, you notice that the range of useful data is very narrow. Prior to attempting classification, would you enhance the image with a linear contrast stretch?
8. The swath width of a Landsat Thematic Mapper (TM) image is 185 km, how many pixels and lines will one scene of TM image hold if we assume that the image is a square?
9. One 8-bit pixel takes up one single byte of computer disk space. One kilobyte (Kb) is 1024 bytes. One megabyte (Mb) is 1024 kilobytes. How many megabytes of computer disk space would be required to store an 8-bit Landsat Thematic Mapper (TM) image (7 bands), which is 6000 pixels by 6000 lines in dimension?

10. A contingency table or confusion matrix is given below. In this table, classification is given as rows and verification (ground truth) is given as columns for each sample point.

		Reference		
		Forest	Water	Urban
Classification	Forest	28	14	15
	Water	1	15	5
	Urban	1	1	20

What do the diagonal elements in the matrix represent? Can you explain and derive commission error and omission error for each land use category? What is the overall classification accuracy? What is kappa coefficient or $K\text{-hat}^*$?

11. Summary of photogrammetry and review questions from Week 12.

* Optional